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CONTENTS AND SUBJECT INDEX

The Rôle of the Clinical Pathologist. Arthur H. Sanford, M.D., Rochester, Minn. 1465

New Problems of the Orthopedic Surgeon. C. B. Francisco, M.D., Kansas City, Mo. 1467

The Heart in Pregnancy. William D. Reid, M.D., Boston.....1468

Cardiovascular Disturbances in the Obstetric Patient with Especial Reference to Electrocardiographic Observations. George Herrmann, M.D., and E. L. King, M.D., New Orleans 1472

Papers of Dr. Reid and Drs. Herrmann and King discussed by Drs. Pardee, Falls, Epstein, Reid and Herrmann.

Treatment of Nontuberculous Suppurative Pneumonitis, Abscess and Bronchiectasis. John Alexander, M.D., Ann Arbor, Mich., and W. W. Buckingham, M.D., Kansas City, Mo. 1478

Postoperative Pulmonary Hypoventilation. Richard H. Overholt, M.D., Philadelphia.....1484

Papers of Drs. Alexander and Buckingham and Dr. Overholt discussed by Drs. Muller and Steinke.

The Use of Mechanical Measures in the Treatment of Obstinate Edema. Edward F. Bland, M.D., and Paul D. White, M.D., Boston.....1489

Discussed by Drs. Smith, Morgan and Bland.

Intracapsular Fractures of the Neck of the Femur. John J. Moorhead, M.D., New York.....1494

Discussed by Drs. Scudder, Speed, Whitman and Moorhead.

Plastic Repair of Inguinal Hernia. Joseph A. Pettit, M.D., Portland, Ore. 1497

Discussed by Dr. Vanden Berg.

Juvenile Dementia Paralytica: A Study of Forty Cases. W. C. Menninger, M.D., Topeka, Kan....1499

Discussed by Drs. Reese, Woltman, O'Leary and Menninger.

CLINICAL NOTES, SUGGESTIONS AND NEW INSTRUMENTS

Rubber Flask Connectors. F. M. Pottenger, Jr., M.D., Monrovia, Calif. 1503

Urticaria and Hay-Fever Due to Trichophytin. Fred Wise, M.D., and Marion B. Sulzberger, M.D., New York 1504

COUNCIL ON PHARMACY AND CHEMISTRY 1505

Committee on Foods.....1505

EDITORIALS

Suprarenal Function.....1506

Eat and Grow Fat.....1507

The Theory of Diabetes.....1508

CURRENT COMMENT

Nature of the Substance in Liver Active in Pernicious Anemia..1509

Hydrophagocytosis 1509

(Subject Index on next page)

ASSOCIATION NEWS 1509

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SUBJECT INDEX TO THIS ISSUE

The letters used to explain in which department the matter indexed appears are as follows: The Star (*) indicates an Original Article; "ab," abstract; "E," Editorial; "C," Correspondence; "Ml," Medicolegal; "ME," Medical Economics.

A. M. A., history *1465
Abscesses after appendicitis ab-1541
Adhesive plaster bandage vs. healing ab-1543
American Board of Otolaryngology 1514
Anemia, Pernicious, substance in liver active in E-1509
Anesthesia, nitrous oxide-oxygen, results ab-1543
suppository, in urethra ab-1544
Appendicitis, etiology ab-1544
hepatitis with abscesses after ab-1541
Appendix, helminthologic study ab-1541
spirochetes in ab-1541
Arthritis, concept of ab-1536
chronic rheumatic, blood calcium in ab-1543
Ascarids, intestinal obstruction from 1519
Association News 1509
Aviators, health of 1514
Bacillemia in leprosy 1519
Bacterium granulosis vs. trachoma ab-1535
Benzene derivatives in etiology of cancer ab-1540
Bile Ducts, draining ab-1544
Biliary Tract calculi, peritonitis in ab-1542
Birth Control condemned 1516
Bismuth: perspiration ab-1533
salicylate, excretion ab-1533
Bladder, malignant tumors, treatment ab-1545
tumors, chemocoagulation ab-1545
Blindness, causes among Chinese ab-1538
Blood calcium in pneumonoconiosis ab-1533
symptomatic thrombopenic conditions ab-1546
transfusion in Bright's disease ab-1531
transfusion in infectious diseases ab-1531
Bone regeneration, effect of diet ab-1543
Book Notices 1526
Books Received ..... Adv. page 30
Bourget, Paul 1516
Brain, rôle of subcortical centers 1519
Breast cancer, treatment ab-1543
fat necrosis of ab-1540
syphilis of mammary gland ab-1543
Bronchiectasis *1478
Bureau of Investigation 1523
Cancer, benzene derivatives of intestinal putrefaction in etiology ab-1540
campaign against, Ukraine 1519
Carbohydrates, conversion of fat to E-1508
Carbon Monoxide poisoning, necropsy in 1524
Cardiovascular disturbances in labor *1472
Cerebrospinal Fluid test, Takata-Ara ab-1534
Chickenpox, blood changes in ab-1540
opsonic index in convalescent ab-1540
Child Guidance Clinic 1512
Colon, megacolon ab-1545
elongation, treatment 1524
Committee on Foods 1505
Conjunctiva infection, treatment 1524
Council on Pharmacy and Chemistry 1505
Deaths 1521
Dementia paralytica, juvenile *1499
Dermatitis from soap 1525
Dermatophytid complicating tinea cruris ab-1533
Deutsche psychoanalytische Gesellschaft 1520
Diabetes Mellitus, insulin in, errors ab-1539
nonoxidation theory E-1508
Diagnosis, Head's zones as aids in ab-1546
Diathermy, surgical 1517
Diet, eat and grow fat E-1507
Diphtheria immunization in Australia 1518
Eat and grow fat E-1507
Eczema, alkalinity of blood in ab-1546
Edema fluid, analysis *1492
Southey tubes in *1489
Embolism, air ab-1542
Encephalitis following vaccination ab-1534
epidemic, amyotrophic lateral sclerosis ab-1535
Epilepsy ab-1536
pre-existing, effect of fever on ab-1534
Epinephrine E-1506
Erythema nodosum, etiology in children ab-1531
Ethics of Royal College of Surgeons 1517
Eugenics and birth rate 1520
Expert 1525
Fat, eat and grow fat E-1507
conversion into carbohydrates E-1508
Feces, bismuth in ab-1533
Femur, intracapsular fractures of neck *1494
Fever, effect on preexisting epilepsy ab-1534
Fingers, treatment of suppurations ab-1542
Flask connectors *1503
Foreign Letters 1515
French Surgical Society, meeting 1516
G. P., a new journal 1518
Gallbladder calculi, peritonitis with ab-1542
Gallbladder inflammation, blood sugar in ab-1544
inflammation, chronic ab-1532
Giardia intestinalis in North China ab-1538
Goiter, Exophthalmic, pathogenesis ab-1546
exophthalmic, surgery in ab-1536
Hand, treatment of suppurations ab-1542
cleansing without irritation 1525
Harvard fellowships for medical students 1510
Harvey Lecture 1512
Hay-Fever due to trichophytin *1504
Head's zones in diagnosis ab-1546
Health agencies, plan to unify 1512
center opened 1512
officers, conference of 1512
units, establish, Ala 1510
Heart, infarcts ab-1536
disease, congenital, murmurs ab-1531
disease, course in 1511
electrocardiography in obstetrics *1472
failure, postoperative deaths due to ab-1546
in pregnancy *1468; *1472; 1476
murmurs, venous murmurs in ab-1531
Helminthologic study of appendixes ab-1541
Hemiplegia, cerebral, sympathectomy in ab-1541
infantile, due to malaria ab-1541
Hernia contusions ab-1540
inguinal, plastic repair *1497
Hip, congenital luxation in new-born 1517
Hospital, Grenfell, in Labrador 1514
Hunt's Reaction ab-1546
Hydrophagocytosis E-1509
Hypodermoclysis, rubber flask connectors for *1503
dextrose and saline solution by 1525
Hypoventilation, pulmonary, postoperative *1484
Industrial Hygiene Society 1520
Infections, pyogenic, acute, changes in spleen in ab-1536
Infectious Diseases, transfusion in ab-1531
degree of disability in 1521
"In-No-Scent" 1525
Insurance, life: cancer and good health Ml-1529
Intestines obstruction from ascarids 1519
Intravenous Therapy, rubber flask connectors for *1503
Jaundice, due to spirochetes ab-1541
Journal-Lancet, 60th birthday 1511
Jury: illness of juror; effect of Ml-1530
Kümmell's Disease 1516
Labor, cardiovascular disorders in *1472
Lead, effect on isolated uterus ab-1545
Leprosy, bacillemia in 1519
Leukocytes, Lewis-Gregory moving pictures of E-1509
Lichen nitidus, gold sodium thiosulphate for ab-1533
Liver cirrhosis, venous murmurs in ab-1531
draining ab-1544
infective hepatitis due to spirochetes ab-1541
inflammation after appendicitis ab-1541
substance in, active in pernicious anemia E-1509
Lockyer pathologic collection 1516
Lungs, abscess, treatment *1478
postoperative hypoventilation *1484
primary sarcoma in child ab-1542
Lymph Nodes, tuberculosis of tracheobronchial ab-1536
Lymphogranulomatosis, gastro-intestinal ab-1544
Malaria, infantile hemiplegia due to ab-1541
Malpractice: tonsillectomy, fatal Ml-1530
Marriage of cardiac patients *1468
Marriages 1521
Maternity service, national, England 1515
Measles, opsonic index in convalescent ab-1540
Medical Education, graduate, experiment in 1511
Medical Education, Registration 1526
Medicolegal 1529
Meetings, Coming Meetings 1530
Meningovascular syphilis 1525
Mental Defectives, sterilization 1515
Methanol, danger from, as skin rub 1525
Mouth, perlèche of adults ab-1533
Muscles, scalenus, resection with phrenicus exeresis ab-1545
Mussel quarantine raised 1510
Mutter Lecture 1513
Naturopaths cannot confer degrees 1513
Nephritis (nephrosis), tubular ab-1531
transfusion in ab-1531
Nervous System diseases, blood changes ab-1546
New and Nonofficial Remedies 1505
News 1510
Obesity, eat and grow fat E-1507
Obstetrics, cardiovascular disturbances in *1472
Opsonic index in children ab-1540
Orchitis after vaccination in child ab-1542
Orthopedic surgeon, new problems *1467
Pain, visceral, referred ab-1532
Pancreatitis, chronic 1517
Paralysis, General, of insane, frequency ab-1546
of insane in adult vs. in child *1499
Parrots, ban on, lifted 1514
Patella, transplantation ab-1539
Pathologist, clinical, rôle of *1465
Peptic Ulcer and cancer ab-1546
gastric, excision ab-1543
perforated, surgical end-results ab-1543
roentgen diagnosis ab-1536
symptoms of duodenal ab-1543
Peritoneum, secondary cancer of ab-1539
Peritonitis, biliary ab-1542
Perlèche of adults ab-1533
Physiologists, conference of, Ukraine 1519
Pneumonia, cutaneous reactions in ab-1535
influenzal, after vaccination ab-1534
pneumococcus, host factors in ab-1535
Pneumonitis, nontuberculous suppurative *1478
Pneumonoconiosis, serum-calcium in ab-1533
Poliomyelitis, immunity to ab-1535
status of, Ohio 1513
Population, distribution 1515
Potassium bismuth tartrate, excretion ab-1533
Pregnancy, heart in *1468; *1472; 1476
Psychoses, symptomatic changes in blood ab-1546
Pulse, anacrotic ab-1539
Pyoderma (echthyma) gangrenosum ab-1533
Queries and Minor Notes 1524
Radio Program 1509
Red Cross Society, British 1515
Reflexes in decapitated dog 1519
Respiration, postoperative hypoventilation *1484
Rheumatic fever, antiserum for ab-1531
heart disease, Southey's tubes in *1489
heart disease, statistics *1468; 1476
Rickets, calcium-phosphorus absorption in ab-1541
Rockefeller Foundation gives institute to India 1514
Royal College of Surgeons, fellowship examination; ethics 1517
Salicylate, bismuth, excretion ab-1533
Sclerema neonatorum ab-1538
Sclerosis, amyotrophic lateral ab-1535
Scripps Clinic Lectures 1510
Sigmoiditis, surgical treatment ab-1540
Skin disease, disability in 1521
rub, danger from methanol 1525
Smallpox vaccination, encephalitis and influenzal pneumonia after ab-1534
vaccination, orchitis after ab-1542
Snake bite, local venesection for ab-1537
Soap, dermatitis from 1525
Society Proceedings 1530
Southey's tubes in edema *1489
Spine, paravertebral abscess ab-1536
posttraumatic spondylitis 1516
Spirochetes, appendicular ab-1541
Spleen, changes in pyogenic infections ab-1536
primary hemangioma of ab-1544
Sputum concentration by incubation ab-1532
State Board Examinations 1526
Sterilization of mental defectives 1515
Stomach cancer vs. ulcer ab-1546
cancer, roentgen diagnosis ab-1536
Suprarenal function E-1506
Surgeon, orthopedic *1467
Surgery, hypoventilation after *1484
preparing patients for operations 1516
Sweat, bismuth in ab-1533
Thrombophlebitis migrans ab-1537
Tinea cruris, dermatophytid with ab-1533
Tonics and Sedatives ..... Adv. page 24
Trachoma, Bacterium granulosis and ab-1535
Traction for femur fracture *1495
Trichophytin, urticaria and hay-fever from *1504
Tuberculosis, tuberculin reaction in ab-1538
roentgenographic picture in 1518
Tuberculosis, Pulmonary, immunobiology ab-1533
in general practice ab-1537
phrenicus exeresis with resection of scalenus ab-1545
Uremia, muscular ab-1538
Urethra, postoperative phlegmon ab-1545
suppository anesthesia ab-1544
Urine, bismuth in ab-1533
postoperative retention ab-1543
Urography, excretion ab-1537
Urticaria due to trichophytin *1504
Ustilaginism ab-1544
Uterus, effect of lead on ab-1545
Vaccine virus, cultivation ab-1535
Verruca, removal of 1525
Vital Statistics, birth rate 1515
birth rate and eugenics 1520
birth rate, London's lowest 1515
birth rate, U. S. lowest 1514
Wassermann Test in rabbit syphilis ab-1546
persistent positive, treatment 1525
White House Conference on Child Health 1514
Wound healing under bandage ab-1543
Yeast-like fungi, serologic relationship ab-1538
Yellow Fever, guanidine in blood ab-1537
domestic animals as carriers 1518
patients, study 1514

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THE RÔLE OF THE CLINICAL PATHOLOGIST *

ARTHUR H. SANFORD, M.D.
ROCHESTER, MINN.

It is evident from the title of my paper that the Section on Pathology and Physiology may not have followed precedent in honoring me by election to the chairmanship of the section. The last chairman was a physiologist, and according to custom I should be a pathologist. However, as my field is distinctly known as "clinical pathology," I shall present for your consideration my views as to the relationship of the clinical pathologist to the physiologist and to the medical profession in general.

This section of the American Medical Association has existed in its present form for almost thirty years, and it came into being as part of the evolution of modern medicine. It represents the realization of ideas somewhat vaguely formed in the minds of the early founders of the Association. As you know, the American Medical Association grew out of the meetings of the National Medical conventions held in 1846 and 1847. The first meeting of the American Medical Association as such was in Baltimore in 1848. The history of the Association can be easily traced by referring to the transactions which were published yearly. The name of Nathan Smith Davis appears most prominently throughout the proceedings in those early years. At a meeting in Philadelphia in May, 1855, a resolution was introduced by Nathan Smith Davis advocating the separation of meetings into business sessions in the morning and scientific sessions in the afternoon. These resolutions were considered the next year (1856), at the first meeting ever held in Detroit. They were not received entirely with favor, because, as stated in the committee's report: "To a few who are gifted with colloquial powers, and to others who have undergone the discipline required to fit them for public debate, the interest of the meetings conducted upon the plan proposed in the resolutions would be greatly increased, but as the great body of the Association would, voluntarily it is true, be excluded from participating in these exercises, the enthusiasm which now characterizes our anniversaries would subside, and with it the professional *esprit de corps* . . . the Committee respectfully asks to be excused from submitting a distinct proposition on the subject."

The plan was subsequently adopted, and it is interesting to note that the Detroit meetings have always been of great importance to the American Medical Association. At the second meeting of the National Medical Association in 1847, it was proposed to have a Section of Medical Jurisprudence, Hygiene and Physiology. The sections of the Association seemed to have consisted really of committees to stimulate interest in, and to make reports on, subjects pertaining to the fields mentioned. The first activity of such a section seems to have been at Baltimore, in 1866. However, there was no discussion of anything pertaining to physiology. At the Washington meeting in 1870, just sixty years ago, Joseph G. Richardson, microscopist to the Pennsylvania Hospital, Philadelphia, presented a paper entitled "On the Cellular Structure of the Red Blood Corpuscle." This paper, presented before the Section of Medical Jurisprudence, Hygiene and Physiology, stimulated the appointment of a committee with Richardson as a member to make microscopic research on the structure of the white blood corpuscles and to report at the next meeting of the Association. The report was not made until two years later. That the Association manifested great interest in physiology at the Washington meeting was also evidenced by the fact that Dr. Henry Noel was requested to prepare a paper "on such physiological subject as he may select to be read before the next meeting." It was also moved that the permanent secretary be asked to urge members to write papers on physiology to be read before the Section of Medical Jurisprudence, Hygiene and Physiology.

The next meeting was in San Francisco in 1871. It appears that the section was not active at this meeting but the prize essay of the Association by Edward H. Taylor was on "The Chemical Constitution of Bile." Taylor chose as a motto for his thesis, probably facetiously, the significant quotation from Burton's Anatomy of Melancholy, " 'Tis hard, I confess, yet nevertheless, I will adventure through the midst of these perplexities and, led by the clew or thread of the best writers, extricate myself out of a labyrinth of doubts and errors."

At the meeting in Philadelphia in 1872, the Section of Medical Jurisprudence, Hygiene and Physiology presented Richardson's "Report on the Structure of the White Corpuscle." Henry Harthorne, chairman of the Committee on Arrangements, read a paper entitled "On the Present Condition of Vasomotor Physiology." His committee also announced as an attraction the preparation of a museum, or collection of objects of scientific and professional character, and also an exhibition of microscopes and microscopic objects offered by the biologic and microscopic section of the Academy of Natural Sciences.

At St. Louis, in 1873, a special committee reported on "A plan for the better arrangement of the sections and for the more rigid examinations of papers offered for publication." It was resolved that the Association

* From the Section on Clinical Pathology, the Mayo Clinic.
* Chairman's address, read before the Section on Pathology and Physiology at the Eighty-First Annual Session of the American Medical Association, Detroit, June 26, 1930.

meet for business sessions from 9:30 a. m. until 1:30 p. m. and that the sections meet from 3 p. m. to 5 p. m. for presentation of papers. The proposed sections were:

1. Section of Practical Medicine, Materia Medica and Physiology.
2. Section of Obstetrics and Diseases of Women and Children.
3. Section of Surgery and Anatomy.
4. Section of Medical Jurisprudence, Chemistry and Psychology.
5. Section of State Medicine and Public Hygiene.

The meeting in 1874 was in Detroit. Nathan Smith Davis was the first chairman of the Section of Practical Medicine, Materia Medica and Physiology, and the plan that he had proposed eighteen years before and which had received little encouragement at the former Detroit meeting was put into effect. It might be mentioned in passing that the newly formed Section of Medical Jurisprudence, Chemistry and Psychology had two meetings in Detroit. At the first session only the chairman and secretary were present, and the meeting was adjourned. At the next session there were four members present, including the officers. The chairman and secretary each read a paper and the meeting was adjourned.

Joseph M. Toner, in the presidential address, estimated the number of separate diseases known to the profession to be 2,400. He prophesied that this number would be reduced as knowledge of physiology and pathology advanced. He furthermore stated, "There are some hundreds of young physicians, of first-class ability, noted for their originality of thought and boldness of investigation, residing in different parts of our country, who are working with scalpel, the microscope, and test-tube in the spirit of true philosophers. But where we have ten such, we ought to have a hundred. It is from among such must come the leading medical men of the future."

For another eighteen years the sections met as planned. During this time most of the papers on pathology were presented in the Section of Surgery and Anatomy. In 1892, again in Detroit, a new section went into effect, the Section of Physiology and Dietetics, which continued for eight years. In 1900, on a resolution of Dr. Hektoen, the Section of Pathology and Bacteriology was formed. The next year, however, in St. Paul, the Section of Physiology and Dietetics and the Section of Pathology and Bacteriology were fused to form the Section on Pathology and Physiology, with the plan to have a physiologist as chairman every third year.

I have spent too much time, perhaps, in tracing the history of this section, but I have tried to show how the minds of the profession have been drifting in their ideas of the relationship of these two fundamental branches of medicine. The physiologist has ever been the pioneer for the internist, and the histopathologist has ever been the mainstay of the surgeon. Without going into specific details I think I may safely say that the physiologist usually has been about a decade ahead of the remainder of the profession. But as his activities in the American Medical Association became closely associated with those of the pathologist, we find that he is thinking and talking more and more of pathologic physiology, of alteration of the functions of the various organs of the body when affected by disease, and of deviations from the normal produced by pathologic conditions. So within the last thirty years there has developed what is now recognized as a separate specialty in medicine, that of clinical pathology.

What is a clinical pathologist? To certain members of this section this query will have a familiar sound. It has been discussed and defined many times, particularly by the American Society of Clinical Pathologists. A clinical pathologist is a physician who devotes all or the major portion of his time to diagnosis of disease by laboratory methods. He is a histopathologist and microscopist. He must be a serologist, a bacteriologist and to some extent a parasitologist, a hematologist and somewhat of a chemist and physicist. In this field of varied interests he must always be up to date and must serve chiefly as a consultant in interpreting and evaluating laboratory data for his medical brethren.

Most clinical pathologists in America are devoting part of their time to histopathology. They are often surgical pathologists called on to make diagnoses by the use of frozen sections and to make biopsies generally. They will often also conduct necropsies, and hold clinicopathologic conferences. In connection with such work there may also develop an opportunity for research in histopathology. In most universities, the clinical pathologist and the field of clinical pathology may be somewhat subordinate to general pathology, although in hospitals and in small group practice this is not true, as the clinical pathologist is also the general pathologist.

To the physiologist and physiologic chemist the clinical pathologist owes a great debt, for it is his research of yesterday that so often provides the methods for the laboratory procedures of today. The newer methods for estimating chemical changes in the blood, developed by active physiologic chemists, constitute many diagnostic methods that are of daily use in the clinical laboratory. The same debt is owing to the closely related investigators in serology and in immunology. Without the ready application of these methods, developed in the last twenty years, clinical pathology would never have reached the place that it now claims to occupy. So it must ever be the duty of the clinical pathologist, I feel, to be alert to put to the practical test of experience those new methods and new theories that the physiologist develops, for often the latter has no real opportunity to put them to practical use.

In thus applying the physiologist's methods to the study of the patient, the clinical pathologist becomes a clinician. He may not, and should not, assume responsibility for the care of the patient, but as a diagnostician he should always feel a grave responsibility to the patient, for on his accurate observations depend the diagnosis of the disease and the plan of treatment, surgical or medical. His attitude toward his colleague should be that of a consultant. Although it may be sufficient merely to give a report of observations, the alert and conscientious clinical pathologist should be able to interpret those observations as applied to the particular case in hand. If his opinion is sound and his conclusions are accurate, he will command the respect of the surgeon or clinician who has sought his advice. Then, at times, he may be called on to extend his relationship to the patient by administering a form of treatment which has been developed in the laboratory and which is possibly best handled by the clinical pathologist, such as administration of vaccines and serums, intravenous injection of solutions, and possibly also performance of transfusions of blood.

As a research worker the clinical pathologist may not hope to compete with his brother who devotes his

entire time to such alluring fields. However, his daily duties give him an opportunity always to carry on some investigation. He usually has animals and facilities at his disposal for some form of experimentation. The clinical material that he has at hand usually will provide him with an opportunity for more study than that which is merely necessary to make a diagnosis. In some one of the several fields of interest that I have mentioned, the observing clinical pathologist may often find, in his daily routine, something really worth the most careful study and recording in medical literature.

As I have mentioned, the clinical pathologist also has an opportunity to contribute to the knowledge of general medicine by trying new methods and properly evaluating with the clinician the data thus obtained. In this connection I should like to refer to an address of Arno B. Luckhardt, chairman of this section in 1923. He made "a plea for the concerted efforts of the clinician and the laboratory worker," and said: "The problems in clinical medicine awaiting a practical solution are numerous. In these problems the highly specialized laboratory man is not interested, chiefly because he has no knowledge of them. With a general medical background he would give these problems the attention now devoted to problems of a highly technical nature in his own specialty. Whereas some men seek knowledge for its own sake, others are urged to research because of the practical importance of the knowledge sought for, but in the last analysis, all knowledge is of practical importance, the only difference being that some knowledge is more immediately practical than other knowledge. The solution of more or less practical problems in no way interferes with the development of any science, but rather hastens its development." Dr. Luckhardt probably had in mind the relation of the physiologist to the clinician; nevertheless I feel that he suggested to the clinical pathologist a real opportunity.

Moreover, whether or not the modern clinical pathologist desires the responsibility, he usually finds that he must be an executive. As a director of a laboratory he must employ technicians, purchase supplies and apparatus, keep accurate records, and make charges for services rendered. He must be as much of a business man as a physician can be, and often many of the details of the hospital, institution, or group, will intimately dovetail with the actual business of running the clinical laboratories. In training his technicians he becomes a teacher, not often to be sure in a didactic way, but rather by example and by criticism and daily conference. He may even have the opportunity to do more. It is an acknowledged fact that there is a scarcity of clinical pathologists in the United States. Young men with a liking for laboratory work may take up this specialty if the opportunities can be made attractive. Three years' experience working under a clinical pathologist or in the closely allied fields is considered the minimal requirement for adequate training to fit one for an independent position in this field. Here, truly, the relationship between teacher and graduate student may become evident. The very future of this specialty depends on recognizing and assuming this duty.

Resentment toward a colleague whose manner toward the laboratory man may be irritating does not improve the situation in any way and need not be stressed. Modern medicine is now irrevocably dependent on laboratory methods for diagnosis, and the law of demand in relation to supply will inevitably work.

Some mention should be made of those teachers of the last twenty years who have deliberately espoused the cause of clinical pathology and who, by example and precept, have made the specialty what it is today. We all know and revere the names of Stitt, Todd, Emerson, Simon, Cummer and Webster and have turned to them and many others daily for information.

I realize that to many of you what I have tried to say seems trite. You are the clinical pathologists of today and know all of the problems as well as or better than I do. I might have dwelt more on the economic side of this specialty, but in describing the activities of the clinical pathologist as I see them, I cannot but feel that the outlook is bright. Diagnoses by laboratory methods are now accepted. Correlation of laboratory and clinical data must be made by a physician, not by a chemist, not by a technician. In assuming the rôle of the consulting physician on matters of laboratory diagnosis, the clinical pathologist will come into his own.

NEW PROBLEMS OF THE ORTHOPEDIC SURGEON *

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The practice of medicine is undergoing a definite change. There are many indications of this, such as the appointment of the various committees for the study of the cost of hospital care, the cost of medical education and other inquiries that are being made under the direction of the American Medical Association. In addition to this, there are many lay organizations that are interested in the prevention and care of the sick and disabled. The result of this activity up to the present time is quite evident in that no one can deny that there is now better supervision of all medical and surgical work and that a noticeable advancement has been made in the prevention of disease. Just what the further and ultimate effect is going to be one cannot say, but that it is important for the profession to take a vital interest in the movement so that the progress will be along the proper lines is self-evident; to stand aloof and cry out that we are drifting into state medicine with its attending disaster to the principles and precedents of our profession is not the proper way to meet the issue that we face. If we use our efforts to guide the movement along proper lines it will no doubt work out for the common good of all concerned.

Orthopedics, the branch of medicine that this section represents, is probably undergoing a greater change than any other branch of medicine. The greatest movement in the interest of the crippled child that has ever been known is sweeping over the whole country. It is interesting and important to note what the tendency of this movement is. Observations rather clearly indicate that the tendency is to take the work to the communities rather than to take the child to the centers where the work has been established. Many of the states in the central portion of the country are at work on plans that will establish clinics throughout the state both for the operative and for the follow-up care of these cases. This is, no doubt, the result of the success that has followed the establishment of hospitals in these various communities for the care and treatment of general conditions. If this plan is proper and is to be the one

* Chairman's address, read before the Section on Orthopedic Surgery at the Eighty-First Annual Session of the American Medical Association, Detroit, June 27, 1930.

ultimately worked out, it creates a definite responsibility in the teaching of orthopedics in the medical schools.

To meet this demand, medical students and interns will need to be taught more of the principles of orthopedics and that it is definitely a part of medicine and surgery and not a distinct specialty. It would also necessitate standardizing the ordinary procedures in this line of work and removing the mysterious atmosphere that at present hovers around this specialty. Many physicians are often embarrassed by being referred to as miracle workers when in reality there is nothing about the correction of deformities that is any different in principle from surgical work in general. The aims are exactly the same; namely, to overcome the effects of disease and disability and to restore the patient to usefulness.

That students can be taught to care for the ordinary congenital and acquired deformities is, to my mind, just as logical as the fact that they can be taught to care for the ordinary ailments that they are expected to care for in the general practice of medicine. It is true that they need supervision in a general way and that it will always be the function of the medical centers and of the medical organizations to furnish this supervision and to supply the institutions to care for the unusual cases that will always exist. Medicine and general surgery have only recently been established on the community basis, and it has worked out so successfully that my observations lead me to believe that the trend of orthopedics is toward a similar plan; to my mind it is possible to work it out in time quite satisfactorily.

The other phase of orthopedics has been toward the industrial side of medicine. This is a tremendously large field and one that is rapidly undergoing reorganization. Compensation laws and insurance organizations are assuming control with a tendency to direct this work. They are requiring more from the industrial surgeon than the surgeon has ever produced. They are demanding shorter hospitalization periods, a quicker return to duty and earlier adjustments of claims. This is also greatly to the advantage of the claimant. The best possible method of preventing compensationitis is prompt action by the physician in recommending a hearing before the compensation board. The insurance companies need the guidance of the medical profession but they are still casting about for the methods that bring the quickest results.

The orthopedic men have been the ones to whom they have turned for advice. At the present time they are looking to us to reorganize and supervise the care of cases of industrial injury. There is much that we must consider if we are to direct industrial surgery successfully. One of the important phases is that of medical ethics. Insurance companies know nothing about medical ethics and, in reality, care nothing about them. To allow our established principles of ethics to be broken down would mean ultimate disaster for us as well as for them. We must therefore labor with these organizations until they are willing to accept our established code; also, we must labor with ourselves so that we can see and are willing to accept the insurance company's point of view. We should also understand that compensation laws cannot possibly be framed to the end that justice can be secured for every individual, and also we should understand that the individual will be best served by the fair and just rating of all cases. Therefore, the work of supervising and placing this field of medicine on its proper basis is of vast proportions and I would like to urge that each member of this section renew his allegiance to this branch of orthopedic surgery that has literally been thrust on us to the end that we prove ourselves equal to the task of properly directing the organization of this branch of surgery to the satisfaction of all.

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THE HEART IN PREGNANCY*

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What advice shall be given to the cardiac patient who contemplates marriage? If pregnancy ensues is it not likely to cause the mother's death or, if not that, to cut years off her length of life? It is my purpose in this article to discuss pregnancy in the cardiac patient in an attempt to answer these questions and to offer a brief statement of the therapeutic principles.

DIAGNOSIS

The first essential is an accurate diagnosis of the condition of the heart; it has been amply demonstrated that many of the patients whose hearts have been thought to be diseased in reality possess fully normal hearts. Gammeltoft[1] of Copenhagen has shown that during pregnancy the cardiac condition may often simulate organic disease although the latter is not actually present. He studied 239 perfectly healthy pregnant women and found that during the final two months of pregnancy 39, or 16.3 per cent, showed signs that suggested organic cardiac disease. These were: rapid pulse, extrasystoles, visible venous pulsation, and systolic and diastolic murmurs at the base of the heart and over the pulmonic and tricuspid valves. In no instance could these be detected four weeks after parturition. Gammeltoft writes: "I do not doubt that quite a number of cases of functional heart disturbances are included among the cases of heart disease which are treated in obstetric clinics everywhere. This in turn means that statistics will vary a good deal."

It may be well to give a definition of heart disease. In simple language this can be stated as some structural change that can be detected macroscopically or at least microscopically by the pathologist at postmortem examination. I am not concerned, for the purpose of this article, with the belief of some authors that there may be instances of cardiac disease in which the abnormality is due to physicochemical changes that are as yet undetectable by the present methods of examination.

There are certain guides or principles that should be more generally followed before deciding that organic heart disease is present:

The Rule of Age: The diagnosis of heart disease in patients under 40 years of age is rarely justifiable in the absence of one or more of the chief reliable signs; in the elderly the reverse is true. Most pregnant women are less than 40 years of age.

The chief reliable signs of organic heart disease are:[2]

1. Distinct overdistention of the veins of the neck.
2. A precordial thrill, if a definite "purr"; a slight vibration is insufficient.

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* From Boston University School of Medicine, and the Evans Memorial.
* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Eighty-First Annual Session of the American Medical Association, Detroit, June 26, 1930.

1. Gammeltoft, S. A.: The Heart in Pregnancy, Surg. Gynec. Obst. **46**: 382 (March) 1928.
2. Reid, W. D.: Cardinal Principles of Cardiac Diagnosis, Boston M. & S. J. **197**: 132 (July 28) 1927.

3. An unmistakable pericardial friction rub.
4. A diastolic murmur.
5. An irregular rhythm, persisting after exercise, especially if the rate is or reaches 120 or higher.
6. Definite signs of enlargement of the heart.
7. Expansile pulsation of the liver.
8. Widespread arterial disease or a persistent blood pressure of 160 or above in a young person, of 180 or higher in the elderly.

It should be remembered that in pregnancy signs 1 and 6 must be used with caution. The increase in abdominal pressure during the later months of pregnancy causes distention of the cervical veins; this disappears promptly after delivery. Also, when the uterus is large its tendency is to cause a high position of the diaphragm which in turn produces a more transverse position of the heart. In this way the location of the cardiac impulse and borders of percussion dulness are displaced outward, and the unwary may believe that the heart is enlarged. The enlargement is apparent but not real; if the size of the heart is to be accurately determined, resort to roentgen mensuration should be made. And, furthermore, there are occasional instances in which the sign described under item 5, i. e., auricular fibrillation, occurs in an otherwise normal heart.[3] Gammeltoft [1] has been cited as having detected diastolic murmurs in some pregnant women whose hearts were normal. It is noted that he did not find these apparently functional diastolic murmurs at the apex. Therefore, the middiastolic murmur of mitral stenosis retains its reliability as a sign of that lesion. The occasional exceptions to the foregoing reliable signs have been discussed elsewhere.

Minimal Symptoms and Signs: A diagnosis of cardiac disease is indicated at times in spite of the lack of any of these reliable signs. This applies to angina pectoris, certain electrocardiograms, bacterial heart disease and, in elderly patients, a diminution in the tolerance for exercise. In young persons in the absence of one of four cardiac conditions—definite enlargement, aortic disease, mitral stenosis, or auricular fibrillation—a deficient exercise tolerance should rarely be attributed to the heart; tuberculosis or other infection is more likely. Pregnancy itself causes a lessening of the tolerance for exercise.

Practically all cardiac symptoms and signs not listed here, though often associated with organic disease of the heart, are so frequently present with the normal organ that they are not of themselves reliable evidence of cardiac disease.

TYPE OF HEART DISEASE

In patients in whom the results of examination justify the diagnosis of organic heart disease, rheumatic heart disease is the type nearly always present. In fact, other observers [4] have found that more than 90 per cent of the cases of significant heart disease in pregnancy are those of the rheumatic type; my experience agrees with this figure. Because of this fact the subject matter of this article will be limited to rheumatic heart disease, or, as it is less well termed, valvular disease of the heart.

STATISTICS ON RHEUMATIC HEART DISEASE

There are not available many statistics as to the age of death of patients with the rheumatic type of heart disease. In table 1 are given such as I have been able to find. The average age at death of the patients studied in these reports is 35.5 years.

For the purpose of obtaining data relating to the age at death of the patient affected by rheumatic heart disease and its relation to pregnancy, I have searched

TABLE 1.—*Mortality from Rheumatic Heart Disease*

Authors	Cases, Number	Males, Number	Females, Number	Age at Death, Years	Duration from First Attack of Rheumatic Fever to Death, Years	Age at Death	
						Males, Years	Females, Years
Willius, F. A.: Am. Heart J. **3**: 139 (Dec.) 1927	160	80	80	39.5	14	41	38
Cohn, A. E.: Am. Heart J. **2**: 275 (Feb.) 1927	....	..	..	20-35* 35-45*	15*		
Cabot, R. C.: Facts of the Heart, Philadelphia, 1926	107	45	62	30-39	..	60% before 40	40% before 40
Coombs, C. F.: Rheumatic Heart Disease, New York 1924	98	..	..	28.2			
Reid, W. D.	27	7	20	43	28†	38.6	43
Average.....	..	..	..	35.5‡	..	40.8§	39.0§

* Computed from the literature.
† Average for 12 of the 27 cases.
‡ Cohn's figures were not used in obtaining this average age.
§ Computed from Willius and Reid only, so the average is not actually comparable with that of the entire group, as given in the fourth column.

the postmortem records of the Boston City Hospital from 1916 through 1928, a period of twelve and a half years. Some of the pertinent data are presented in table 2.

TABLE 2.—*Sex and Marital State in Necropsy Cases*

	Cases, Number	Age at Death, Years	Average Size of Mitral Orifice, Cm.	Cause of Death	
				Cardiac, Number	Other Disease, Number
Entire group.....	27	43.2	5.9	13	14
Males.....	7	38.6	5.0	3	4
Females.....	20	44.8	6.1	10	10
Single.....	10	47.2	6.5	5	5
Married.....	10	42.4	5.8	5	5

The study was limited to instances of definite stenosis of the mitral valve. It was felt that statistics based on the presence of this lesion could not be questioned, as it appears to be generally accepted that mitral stenosis is caused solely by rheumatic heart disease; only cases proved post mortem were utilized in order to eliminate the possibility of errors in the clinical diagnosis and the rare occurrence of narrowing of the mitral valve by nonrheumatic lesions.

The possible criticism that the statistics may be affected by the noninclusion of mitral insufficiency and aortic lesions is answered by pointing out that other observers [5] have found that analysis of their cases in relation to the valvular lesions present showed that the particular valve lesion had little determining influence on the mortality rate.

There were found only twenty-seven cases of rheumatic mitral stenosis; nevertheless it is believed that the statistics obtained from this group offer information on the subject in hand, namely, the heart in pregnancy. The reader is cautioned against giving these figures unwarranted significance. Their number, as already stated, is small and they are limited to the most definite cases. The group is a representative one, rather than

3. Reid, W. D.: Auricular Fibrillation in an Apparently Normal Heart, Boston M. & S. J. **197**: 1213 (Dec. 29) 1927.
4. Breed, W. B., and White, P. D.: Heart Disease in Pregnancy, Boston M. & S. J. **188**: 984 (June 21) 1923. Hamilton, B. E.: Ibid. **197**: 762 (Nov. 3) 1927.
5. Pardee, H. E. B.: Pregnancy Complicating Heart Disease, Am. J. M. Sc. **164**: 847 (Dec.) 1922. Footnote 4, first reference.

a complete group of the lesions of the rheumatic type of heart disease. It is also appreciated that they are drawn from but a single source, that of a large metropolitan hospital. I was not seeking information about rheumatic heart disease in general but the effect of pregnancy on such hearts. Subject to the foregoing, and doubtless other limitations, I consider the statistics to be of value.

The average age at death of these twenty-seven patients was 43.2 years, while that of the single women was 47.2 years and 42.4 years for those that were married. In but twelve of the group was it possible to determine the duration in years of the disease, when the latter was estimated from the initial attack of rheumatic fever or chorea. This is not surprising when one recalls that in approximately half the cases rheumatic heart disease is present in the absence of a history of an etiologic infection. The figures on duration are not of much significance as they are subject to too considerable error; one can, however, place more reliance on the age at death. The cause of death was the disease of the heart in but half of the entire group; on this point there was no significant difference in relation to sex or marital state.

The figures gleaned from the ten married women are of greatest interest. In one case there is no statement as regards the bearing of children; in a second, the clinical record mentions repeatedly that the patient was the mother of "a large family" but does not specifically state the number of offspring. The remaining eight women bore children, 46 in all, or 5.75 children per mother. There was but a single miscarriage. The latter occurred in a woman who had successfully borne five children but who aborted in her sixth pregnancy. The fetus was lost at five months during a febrile disease from which she died five months later and which was proved to be subacute bacterial heart disease; *Streptococcus viridans* was present in the blood cultures both in life and at the necropsy. This single miscarriage can probably be attributed to the terminal viridans infection rather than to the rheumatic heart disease.

It is reasonable to assume that if pregnancy was a potent cause of the premature death of women with heart disease some evidence of this effect would be shown in the records of patients in a large hospital such as the Boston City Hospital. My search, however, has disclosed no essential difference save an average age at death of 4.8 years less for the married women than for the single, but even then the former outlived the men with the same cardiac disease. When the data are analyzed in relation to the number of children and miscarriages, the figures appear even more favorable. I feel safe in concluding that as far as these statistics have value they support my clinical impression that women with rheumatic heart diseases die before their time, in fact during the child-bearing period, not because of marriage and pregnancy but on account of the natural evolution of this disease.

EFFECT OF PREGNANCY ON THE HEART

It has been shown [6] that the blood volume is increased in pregnancy. Barcroft [7] has discovered in addition that a contraction of the spleen occurs in pregnancy. The increase in the blood volume takes place at about the middle of gestation or at the same time as the observed contraction of the spleen. It is considered, therefore, that the increase in the volume of the blood is derived from that released from the large content in the spleen before it contracts.

One of these investigators [8] has shown that in pregnancy the volume output per minute of the heart is increased an average of 44 per cent and he concludes therefore that to accomplish this the work of the heart has increased to the same extent. However, the late Sir James Mackenzie [9] emphatically stated that there is no such thing as heart disease caused by pregnancy. He believed that pregnancy did not induce cardiac hypertrophy or any pathologic change in this organ.

There are certain facts in the physiology pertaining to the heart that cause one to question whether it is correct to infer, as I understand Haupt to do, that an increase in the output of the heart per minute indicates a corresponding percentage of rise in the work of this organ. As pregnancy advances the progressively enlarging uterus gradually distends the abdomen with increased intra-abdominal pressure, and thereby better return of the venous blood to the heart ensues. The effect of this is stated by a physiologist [10] as follows:

> By increasing the venous return the output per beat is increased proportionately. The greater *initial length* of the cardiac fibers at the beginning of systole results in more forcible contraction, so that greater amounts of blood are discharged at each beat ("Law of the Heart"—Starling). If the fibers are overstretched, then a more feeble contraction results, the output is diminished, and the heart does not empty itself effectively. The pressure in the heart rises very little during the diastolic filling, because the heart fibers elongate and adapt themselves to accommodate the blood which is entering.

According to Starling's law of the heart, just mentioned, within certain limits of augmented return of the venous blood the myocardium contracts to better advantage, and the output of the heart increases more than the actual work of the muscle. The physiology of the circulation is complex and this is not the place to attempt its further discussion.

It might be thought that the death of some of these patients within the first year or two after the birth of a child was due to an effect of the pregnancy in reactivating the rheumatic infection in the heart. The analogy of tuberculosis is cited. This analogy has, however, lost much weight with me since I have been informed that an analysis undertaken in Vienna [11] of 8,000 pregnancies disclosed that inactive tuberculosis rarely becomes worse through pregnancy: only 5 per cent of the patients showed lighting up of the tuberculous process and these cases were thought probably to have been active before the onset of pregnancy. Some patients have trouble in one pregnancy and little if any in a subsequent one.[12] Perhaps this difference is in part due to activity of the rheumatic infection during the particular pregnancy in which cardiac insufficiency was present.

It is true, nevertheless, that cardiac insufficiency appears in a considerable number of these patients during pregnancy and appropriate therapy is imperative.

6. Rountree, L. G., and Brown, G. E.: Studies in Blood Volume with Dye Method, Ann. Int. Med. **1**: 890 (May) 1928. The Spleen in Pregnancy, editorial, J. A. M. A. **94**: 638 (March 1) 1930. Gammeltoft (footnote 1) cites a series of observers who have demonstrated the blood flow through the heart in pregnancy.

7. Barcroft, J.: Alterations in the Volume of the Normal Spleen and Their Significance, Am. J. M. Sc. **179**: 1 (Jan.) 1930.

8. Haupt, W.: Physiology of Circulation in Pregnancy and Puerperium, Arch. f. Gynäk. **133**: 47 (Jan. 6) 1928.

9. Mackenzie, James: Heart Disease and Pregnancy, Lancet **1**: 1230 (June 11) 1921.

10. Wright, S.: Applied Physiology, Oxford University Press, 1926, p. 212.

11. Davis, Max: Personal communication to the author; data to be published in the volume on gynecology written by Amreich and Pehan of Vienna.

12. Nelius, A.: Heart Disease and Pregnancy, Monatsschr. f. Geburtsh. u. Gynäk. **57**: 127 (March) 1922.

The prognosis is often uncertain; it is not easy to predict in many cases what degree of disturbance, if any, may ensue.

PROGNOSIS AND TREATMENT

Medical literature contains numerous good articles on the treatment of the cardiac patient who is pregnant. I will therefore touch but briefly on this aspect of the subject. Table 3 gives the mortality in about 40,000 deliveries in three maternity hospitals.[13]

TABLE 3.—*Mortality in Three Hospitals, 1922-1927* *

	Boston	New York	Robinson	Totals
Deliveries	8,410	21,597	9,759	39,766
Maternal deaths	109	197	96	402
Relation of maternal deaths to deliveries	1.29%	0.91%	0.98%	0.98%
Cardiac deaths	21	15	3	39
Relation of cardiac deaths to deaths from all causes	19.2%	7.6%	3.1%	9.7%

* The statistics are from the Boston Lying-In Hospital, the New York Lying-in Hospital, and the Robinson Memorial, Boston.

The prognosis and treatment of these patients is dependent on the presence or absence of cardiac insufficiency rather than on the structural change in the heart. The severity of the cardiac insufficiency, if present, is important. The time in pregnancy that congestive failure has occurred and the response to adequate therapy are significant factors. Severe cardiac insufficiency is usually preventable in patients under proper observation for, if therapy is not successful, operative intervention should be used before the patient is in a grave state.

In some patients the abrupt onset of a cardiac arrhythmia induces congestive failure of the circulation by forcing the heart to beat at an unduly rapid rate. The specific arrhythmias are paroxysmal tachycardia, auricular flutter and auricular fibrillation. In these cases it is clearly desirable to postpone emptying the uterus until the state of the circulation has improved through cardiac therapy. Skilful use of the well known methods of stimulation of the vagus nerve will often terminate paroxysmal tachycardia, and in those cases in which it fails the rapid administration of digitalis will reduce the ventricular rate to a more normal level. This may be accomplished within a few hours and permit the operative intervention under more favorable conditions, or, if the patient's condition warrants, it may be decided to maintain the cardiac improvement by further digitalis and let the pregnancy continue.

The principles applicable to the decision as to whether or not the pregnancy should be terminated are relatively simple. Evidence of activity of the infection of the heart or of insufficiency of that organ, if it does not promptly yield to treatment, is an indication for operative intervention. In the occasional case in which the heart disease is complicated by disease in other organs (nephritis or active tuberculosis), pregnancy should be terminated.

In the instances of acute pulmonary edema during labor the condition should be met by the hypodermic administration of morphine sulphate, ¼ grain (16 mg.), atropine sulphate, 1/50 grain (1.3 mg.), and digitalis intravenously in adequate dosage. This therapy should be continued according to need. If labor ceases because of the effect of the morphine, so much the better. The patient's condition may improve sufficiently during the short respite to permit parturition to be resumed under more favorable conditions. This is similar to the abrupt onset of a cardiac arrhythmia, already mentioned, which may or may not be associated with the acute pulmonary edema.

No attempt to induce labor or empty the uterus should, of course, be made in a patient in whom cardiac insufficiency of severe degree is present. It is far safer to keep such patients quietly in bed and resort to medical therapy (morphine and cardiac drugs) than to subject them to the added strain of an operation. If such patients will not survive medical measures, it is unlikely that they will tolerate the shock attending an emptying of the uterus. The problem is not identical with that of the toxemias in which the contents of the uterus are believed to be an important factor in causing the toxemic state. Unless labor is already present, the seriously ill cardiac patient should not be disturbed until her condition has improved.

The method of operative intervention to be employed should be left to the obstetrician; the cardiologist may well be content with stating merely that the procedure attended by the least strain to the mother should be selected. It is obvious that the number of the pregnancy, the record of the patient in former deliveries, the position of the fetus and the relation of its size to that of the maternal pelvis are of importance in deciding on the method of interrupting the pregnancy. If the obstetrician has particular skill in a certain operative procedure, this fact may turn the choice to that particular method.

The services of a skilled anesthetist are more important than the choice of a particular anesthetic. In fact, the selection of the latter may then confidently be left to the anesthetist. A general anesthetic such as ether has no damaging effect on the heart.[14]

It will be noted that I have barely mentioned the details of the medical treatment of cardiac insufficiency in pregnant women. They do not differ essentially from those practiced in nonpregnant patients and consist, of course, mainly in the adequate use of digitalis and rest. Experience shows that rest in bed for more than a short time is not essential to patients in whom the symptoms of cardiac insufficiency are not severe and are promptly relieved by therapy.

The obstetrician must have a good knowledge of cardiology or seek the assistance of a heart specialist when one is available. The treatment of the cardiac patient who is pregnant, to be most successful, requires the cooperation of both cardiologist and obstetrician.

COMMENT

There is clearly a need for the gathering of statistics pertaining to the longevity of persons with rheumatic heart disease in relation to the marital state and number of offspring.

It has been found that the average mortality of cardiac disease in pregnancy ranges from 5 to 10 per cent,[13] whereas the average annual death rate from rheumatic heart disease for patients of both sexes aged 20 to 40 years is estimated[15] to be about 3.5 per cent. The difference, then, between the two, 1.5 to 6.5 per cent, gives a suggestion of the amount of increase in the mortality of cardiac patients due to pregnancy and parturition. In view of the gloomy opinion expressed

13. Reid, W. D.: The Prognosis of Heart Disease in Pregnancy, Am. J. Obst. & Gynec. **19**: 63 (Jan.) 1930.

14. Marvin, H. M.: The Heart During Anesthesia and Operative Procedures, New England J. Med. **199**: 547 (Sept. 20) 1928.

15. Cohn, A. E.: Heart Disease from the Point of View of the Public Health, Am. Heart J. **2**: 275 (Feb.) 1927; my calculation from figures found on p. 277.

by some writers it may be well to turn the figures about; one finds, then, that 90 per cent or more of women with heart disease survive pregnancy.

If it is true that these women with organic heart disease are dying during the child-bearing age because of the natural evolution of rheumatic heart disease and not because of pregnancy, it seems reasonable that this fact should be given consideration when these patients seek advice with regard to marriage and pregnancy. It has been well said by Hay and Hunt that motherhood is woman's peculiar privilege and prerogative, a privilege which one has no right to refuse without adequate reason.

The status of the unmarried woman with heart disease is much closer than is usually taught, I believe, to that of the male cardiac patient who is contemplating marriage. The prospective mother has the problem of whether she can adequately care for her future children. There also is the possibility of the early death of the patient (male or female), causing the leaving of dependent children. The amount of damage which the heart has already suffered, and the financial, social and intellectual status of the patient, have much importance in the decision reached. This is obviously a radically different approach to the subject of marriage in patients with organic heart disease than that which holds child-bearing prohibited in all cardiac patients.

SUMMARY

The first essential is an accurate diagnosis of the condition of the heart. Organic disease of the heart is absent in many pregnant women the integrity of whose hearts has been questioned.

If cardiac disease is present, it is nearly always some form of rheumatic heart disease.

The average age at death of patients with rheumatic heart disease is 35.5 years.

Statistics show that the average age at death was 42.4 years for married women with heart disease and 47.2 years for those that were unmarried. The number of children of the married women in the group analyzed averaged 5.75.

The mortality from cardiac disease in pregnancy is but slightly greater than that of cardiac patients of similar age in the general population. Probably 90 per cent or more of cardiac patients survive pregnancy and parturition.

CONCLUSIONS

Married women with rheumatic heart disease die before their time because of the natural evolution of this disease rather than because of child-bearing.

This fact should be given consideration when advising women with heart disease regarding marriage and pregnancy.

510 Commonwealth Avenue.

Fear is a Mental Deformity.—The behavior problems of David—hitting children, destroying their projects, and acting silly—are not unknown among two-year-old children in the "best families." There the usual treatment is a sharp command to "stop that" or, perhaps, physical punishment. Both of these methods are unpsychological because each maims the personality. Neither one develops the child. So far as either has any effect, the restraining influence is fear; and fear is a mental deformity. The behavior of many mothers would seem to indicate that they think their chief function is to thwart or forbid, and to enforce their prohibitions with punishment which is thought suitable to the tender years of the child. This is the easiest way to discipline. It is also the worst.—Swift, E. J.: The Psychology of Childhood, New York, D. Appleton & Co., 1930.

CARDIOVASCULAR DISTURBANCES IN THE OBSTETRIC PATIENT

WITH ESPECIAL REFERENCE TO ELECTROCARDIOGRAPHIC OBSERVATIONS *

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The relative infrequency of the problems of heart disease in the individual practitioner's obstetric experience has led to a somewhat passive attitude on the part of too many physicians toward the subject. It must be admitted that most of the larger series of gravidocardiac patients reported have come from institutions into which for the most part only complicated cases are admitted. Those working in such institutions are perhaps prone to acquire an exaggerated idea of the importance of the subject. Nevertheless, on the facts gleaned from these extensive studies are formulated the rules to be relied on for guidance in the rational scientific management of the isolated case.

Pregnancy in a patient with heart disease has long been recognized as a seriously complicated situation. Jardine [1] was impressed by the disastrous results accompanying the induction of labor in the gravidocardiac patient. Williamson [2] reported similar conclusions as to the exceedingly great risk in the danger of collapse and sudden death of pregnant women with heart disease after delivery following the introduction of bougies. Mackenzie,[3] Pardee,[4] Wilson and Herrmann,[5] Robinson,[6] Oliver,[7] Hay and Hunt,[8] Jensen,[9] Zinsstag,[10] von Jaschke,[11] and especially Lennie [12] in England, Sachs [13] in Germany and Hamilton and Kellogg [14] in this country, have reported extensive and important clinical studies.

CRITERIA

In any study such as this, it is desirable to state clearly our conception of what the general term "heart disease" embraces. We have considered as patients with heart disease only those who present the reliable criteria or physical signs [15] as evidence that the heart

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15. Besides diastolic mitral and aortic thrills and murmurs, evidences of rheumatic or syphilitic heart disease, there are these other individually pathognomonic signs of heart disease, as engorged neck veins, cardiac enlargement, heart block, auricular fibrillation or flutter or pulsus alternans, aortic dilatation or aneurysm, widespread general arteriosclerosis, chronic hypertension or evidences of chronic nephritis or chronic hyperthyroidism, angina pectoris and none other. The presence of any one of these diagnosticates the presence of heart disease and the absence of every one of them may be taken as proof that the patient is not suffering from heart disease.

muscle has suffered impairment of its reserve through the effect of infection, allergy, anoxemia, strain, exhaustion, undernutrition or developmental disturbances. The state of the heart muscle is such that sooner or later the symptoms and signs of myocardial insufficiency, namely, congestive or anginal heart failure, will appear. This "decompensation" is the result of such precipitating factors as undue exertion, intercurrent toxemia, lack of oxygen or the inevitable vascular and circulatory changes and complications of advancing cardiac hypertrophy and age, and the inevitable embarrassment of the coronary circulation.

MATERIAL

We have been engaged in accumulating these data in the heart station and in the prenatal clinic and maternity service of the Charity Hospital of New Orleans during the past three years, 1927, 1928 and 1929. Within this period there have been admitted a total of 24 cases (1.38 per cent) of heart disease among 1,746 pregnant white women, of which 16 patients (0.916 per cent) with serious cardiac valvular disease with and without disturbances of mechanism complicating the pregnancy were found. At the same time there were also 8 cases (0.458 per cent) with toxic or other myocardial damage and congestive failure. Hypertension, toxic nephritis or eclamptic states were present in 47 cases. The mortality figures were as follows: heart disease, 8; eclampsia, 10; other toxemias, 3; collapse, 4; placenta praevia, 5; premature separation of placenta, 1; postpartum hemorrhage, 2; septicemia, 4; pneumonia, 2; full term abdominal pregnancy and parturition, 1; miscellaneous conditions, 8; total, 48.

The series, though not an extensive one, has been exhaustively studied electrocardiographically as well as clinically, and has yielded information on some of the less stressed but nevertheless important points in the problem of heart disease and pregnancy. We have been especially interested in the disturbances of cardiac mechanism often found in patients with more or less serious chronic cardiac valvular disease. We wish, furthermore, to call attention to significant types of cardiac failure in patients with nonvalvular heart disease and serious partum complications. We have considered as gravidocardiac only those patients who presented one or more of the accepted physical evidences of heart muscle damage.

GROUPS OF GRAVIDOCARDIAC PATIENTS

We have divided our cases into five groups, in each of which there are several patients. The patients with signs of complicating disturbances of cardiac mechanism corroborated by electrocardiographic observations are collected and presented in the first group as a means of calling especial attention to this type of case. There are, as usual, along with these disturbances of mechanism also the evidences of precipitating or concomitant chronic rheumatic valvular defects. In all the other cases the electrocardiographic changes when reflecting the effects of valvular changes only were not commented on.

The groups and their make-ups are as follows:

GROUP 1.—*Gravid patients with disturbances of cardiac mechanism, electrocardiographically recorded, as added complications to the more or less severe rheumatic heart disease.*

In this group we have had two patients with complete bundle branch block. One of these, a multipara, aged 33, also had mitral stenosis and insufficiency, aortic regurgitation and slight stenosis as well as anginal and congestive heart failure. She and her seventh baby died during the spontaneous delivery. The second, a primipara, aged 37, with complete bundle branch block, had an acute rheumatic pancarditis that was discovered in the second month and subsided under treatment, leaving valvular damage and intermittent bundle branch block. During one of the periods of intermittence the patient was successfully delivered of a living baby by cesarean section, and during another an operation for sterilization was accomplished. These most unusual and interesting types of serious cardiac mechanism disturbances have not, so far as we know, been described hitherto in the pregnant woman.

Bundle branch block, as we have pointed out, is a considerably more serious complication and increases the risk in obstetric and also in surgical cases more than does auriculoventricular block. As evidence of the seriousness of intraventricular conduction defects stands witness the fact that our first patient, a multipara who was allowed to go into labor, died suddenly in the beginning of the second stage. We have records of two patients with similar disturbances who died suddenly at the beginning of the surgical procedures. The second patient with bundle branch block was fortunately found by repeated electrocardiographic studies to have short periods of normal conduction after complete rest for a few days. She was followed from the second month to the eighth month at regular intervals of a few days and then daily until it was found after a considerable rest that she was out of block. A cesarean section was performed in one period of normal conduction and in another interval sterilization was accomplished. Bundle branch block returned, but the patient and the baby survived and have been unexpectedly well.

A third patient in this group had had complete auriculoventricular heart block since the age of 20 and had six successful deliveries without any complications. Her valvular damage had been slight with only evidence of mitral insufficiency. This instance of another significant type of unusual disturbance of cardiac mechanism, complete auriculoventricular heart block of long standing with little or no other cardiac damage, seemingly had no disturbing effect. The latter patient had not had a heart rate above 40 since her slow pulse was noted at the age of 19, but no trouble had been experienced in her six parturitions.

A fourth patient presented auricular fibrillation as well as high grade mitral stenosis and congestive heart failure. She and her baby both died during premature labor in the eighth month of her sixth pregnancy. The fifth patient, with paroxysmal auricular tachycardia and rheumatic mitral insufficiency, delivered her ninth baby without any difficulty. Other cases of this disturbance have been likewise handled without difficulty. The sixth patient, with premature contractions, rheumatic mitral insufficiency and stenosis and congestive heart failure, was rested and digitalized and uneventfully delivered her sixth living child.

Auricular fibrillation is a relatively rare obstetric but serious complication under any circumstances, always indicating advanced concomitant myocardial damage. Less serious types of cardiac mechanism disturbance such as paroxysmal tachycardia and premature contractions often occur in gravid patients with normal hearts and are of little consequence if correctly diagnosed and interpreted.

GROUP 2.—*Gravid patients with chronic valvular heart disease without disturbances of rhythm.*

In this group practically all the patients had high grade mitral stenosis and insufficiency. In two patients there was congestive heart failure in the middle months of the seventh and eighth pregnancies. One was successfully treated and tided along until the seventh month, when she was delivered of a living baby by cesarean section. The other disregarded advice and orders, did not respond to her second digitalization and rest,and succumbed to pulmonary edema following the cesarean delivery of a living baby under ether anesthesia. Four other mitral stenosis patients with mild grades of congestive failure were all successfully treated and delivered spontaneously without any mishap. One patient with mitral stenosis and pulmonary cirrhosis died undelivered. Two patients with aortic regurgitation, with and without mitral disease, had little difficulty after a short period of digitalization and rest in bed preceding confinement.

Two patients with congenitally defective intraventricular septum and slight conus stenosis with and without patent ductus arteriosus and cyanosis, both without congestive failure, have been observed to go through pregnancy and labor without any difficulty.

GROUP 3.—*Gravid patients presenting besides chronic valvular defects also acute and subacute postpartum exacerbations of previous rheumatic infection and cardiac damage.*

One of the patients in this group began to have acute inflammatory manifestations in the fourth month of her first pregnancy but was tided along on salicylates and digitalis until the seventh month, when she delivered a premature baby that survived. This was her first pregnancy, and sterilization was advised because of the evidences of chronic rheumatic, mitral and aortic and myocardial disease. The other had an exacerbation of her rheumatic disease beginning in the later months of her first pregnancy and continuing for three months post partum. She recovered under salicylate therapy. Because of the chronic rheumatic mitral disease, she was advised against further pregnancies. The second bundle branch block case of group 1 would also come under this heading.

GROUP 4.—*Gravid patients with myocardial insufficiency before and during labor and often presenting extensive pulmonary thrombosis as a result of chronic congestion of the lungs and further acute parturient slowing of the movement of the blood mass.*

In this group there were four patients recorded, in one of whom myocardial insufficiency of unknown origin appeared in the seventh month of her first pregnancy. Acute severe and persistent hemoptysis was accompanied by signs of consolidation of the lung bases. A postpartum pulmonary thrombosis was demonstrated at autopsy two weeks after the delivery of a dead baby. Another patient with a similar symptom complex with similar signs slowly recovered but had much difficulty because of myocardial and renal damage. A third case of the same type was discovered at autopsy to have pulmonary vascular damage which was erroneously considered extensive embolism. Still another, with a similar clinical picture, died, but permission for autopsy was refused. In this group might be included several patients with evidences of some renal damage that seemingly predominated the picture before delivery, except for some evidences of cardiac damage such as dilatation and an unusually conspicuous gallop rhythm. After delivery these patients usually persistently had rather high grade myocardial insufficiency. This group merges with the last group in which at times are placed cases that cannot be clearly differentiated.

GROUP 5.—*Gravid patients with acute toxic degenerative cardiorenal states, subacute and chronic nephritis, hypertensive, syphilitic aortitis or arteriosclerotic heart disease with ultimate circulatory failure.*

No instances of chronic hyperthyroid heart disease and pregnancy were encountered in this study.

Four examples of various combinations of these toxic degenerative disturbances in pregnant women have been selected for this report. In only one of these was a living baby delivered. One of the patients died; two became chronic cardiac invalids. The fourth one with paroxysmal attacks of acute cardiac failure survived. One patient with syphilitic aortitis and angina pectoris delivered a premature macerated syphilitic fetus and recovered.

The toxic cardiorenal group of gravidocardiac patients should probably be made up of various cases that present acute eclampsia, hypertension, chronic nephritis and arteriosclerotic heart disease that may or may not be accompanied by edema and engorged organs. A toxic renal state is quite often preliminary to heart muscle damage. Sometimes these patients present the signs of renal insufficiency at delivery only to change to the signs of myocardial insufficiency post partum.

COMMENT

In summarizing the groups it is apparent that the electrocardiographic studies have yielded important information that has not been previously emphasized in the obstetric literature. Auriculoventricular and bundle branch block and other disturbances of mechanism are thus found to occur in the pregnant woman and to affect profoundly the prognosis and require specific treatment in many cases. Normal pregnancy, as we [5] and others have shown, produces no significant changes in the electrocardiogram. The presence of defective auriculoventricular and intraventricular conduction or bundle branch block in the gravid patient apparently warrants clinical respect. Indisputable evidence of this defect is unfortunately revealed only by an electrocardiographic study.

Acute active endocarditis, most probably of the rheumatic type, has been present in two of our patients. Pulmonary thrombosis from stasis and pulmonary congestion, the result of myocardial insufficiency, is another serious type of heart failure that has been previously little if at all mentioned, and is here noted as a complication of pregnancy. We have had four such cases, of which two came to autopsy and two were diagnosed clinically only. One of the patients who survived presented definite evidence of having suffered from a pulmonary vascular accident a thrombosis as proved by hemoptysis and lung signs.

Chronic cardiac valvular disease in pregnant women makes up a large part of the series that we have studied. Fourteen of our cases presented definite evidences of some one of the valvular disturbances, the presence of which indicated concomitant myocardial damage usually with, rarely without, congestive failure.

The types of heart disease encountered in pregnant women are no different from those found in the general population, and the incidence is about the same. Heart disease in pregnant women may be in order, toxic, nephritic, hypertensive, rarely arteriosclerotic in

type, rheumatic, syphilitic and goitrous. Disturbances of the cardiac mechanism may occur during pregnancy as well as at any other time. The significance of each of the various types is about the same as it is under ordinary conditions, but even the relatively numerous abnormalities may complicate matters. Only a few are of serious moment, but each must be independently evaluated, taking into account the other cardiac changes. Some arrhythmias, such as premature contractions, even in paroxysms, are of little significance but may embarrass the cardiac function when it is on a strain, as during labor. Auriculoventricular block, auricular flutter, fibrillation and alteration are serious, and especially so is bundle branch block.

The majority of gravidocardiac patients with serious heart disease—only about 25 per cent of all, but about 75 per cent of those that die—present a rheumatic mitral stenosis as the chief abnormality. Three fourths of the cardiac fatalities in pregnancy therefore are the result directly or indirectly of mitral stenosis, fibrous obstructive narrowing of the mitral valve. Therefore, the mechanical effects of the lesion must be a directly contributing factor. Criteria for the diagnosis of mitral stenosis should be reviewed since this lesion is of such importance. These signs have been described in detail elsewhere.[16] The lesion is perhaps the most often undiagnosed of all valve lesions. The characteristic sign is an apical diastolic, low rumbling sound rather than the higher pitched, blowing adventitious sounds usually thought of as murmurs. The rheumatic heart, as a general thing, is no more common in pregnant women than in the population at large.

From 1.5 to 2 per cent of pregnant women have cardiovascular disease. The number of these that have later complications is rather small. Only about 1 or 2 per cent have any trouble whatever during their pregnancy or even during the later great effort of labor. Yet 25 per cent of maternal deaths are due to the presence of a complicating heart disease. The physical strain of the muscular contraction necessary in labor is, of course, the work factor that must be evaluated, and the ability of the heart to carry this load should be determined as nearly as possible.

The woman heavy with child is prone to have some shortness of breath, palpitation, and even some edema from the purely mechanical effects of the gravid uterus in pressing upward the diaphragm, restricting respiratory movements, diminishing the vital capacity, and interfering with the venous return from the extremities. The increasing transverse position of the heart may cause slight shifts in the electrical axis. For these reasons it is often a difficult matter to determine, in the absence of the diagnostic murmurs, whether a woman has merely an exaggeration of effort symptoms or a neurosis or true heart disease.

Pregnancy increases the work of the heart considerably; the extra flow of blood required by a growing fetus in the enlarging uterus puts an indeterminable extra burden on even the normal heart and a strain of serious moment on every damaged heart. The increase in body weight, the reduced diaphragmatic movability, the displacement and rotation of the heart add to the embarrassment of the circulation. Consequently, it is not uncommon to have then the first evidence of cardiac trouble appearing during pregnancy. Under these conditions of strain any slight overtaxing of the heart may be an irreparable insult, precipitating a serious and often fatal congestive failure. The presence of any intercurrent infectious disease, even a mild sore throat or upper respiratory process, must be respected as serious and the patient put to bed to avoid further complications.

16. Herrmann, George: Chronic Cardiac Valvular Disease, Oxford Medicine **2**, pt. 2, chap. xiii, p. 492 (1) to 492 (76).

SOME GENERAL RULES CONCERNING GRAVIDO-CARDIAC PATIENTS

It is hard to formulate any definite hard and fast rules concerning prognosis and measures to be undertaken in all cases. The great majority of patients with organic heart disease, especially those whose activities have not been restricted, can be subjected to a moderately hard labor or to a surgical operation with but slight if any increased risk. A fact not generally realized is that practically every patient who has been able to be up and about without respiratory embarrassment or substernal distress or congestion and edema will go through even a prolonged normal parturition or will tolerate almost any anesthetic regardless of the anatomic valvular lesion in the heart. That is, if the patient has been doing her daily routine without unusual symptoms, discomfort, dyspnea, puffiness, pitting edema or dropsy, she may be expected to do well under a considerable physical strain. Unfortunately, dependence must be placed almost entirely on the patient's story for the information as to the so-called cardiac reserve.

Innumerable tests of cardiac efficiency and exercise tolerance tests have been devised, but none have proved entirely satisfactory thus far. A discussion of these tests have been published elsewhere and is available.[16] The estimation of vital capacity and the cardiorespiratory test seem to be most promising. Pardee's [4] studies of dumb-bell exercise tolerance tests, standards and grouping for pregnant women are of the most importance and constitute a most practical contribution on this important subject. Pardee groups his gravidocardiac patients according to a functional classification based on the reaction to physical strain.

In this grouping class I embraces patients such as those described in the preceding paragraphs. Pregnant women in this class should swing, from between the legs to above the head, a 10 pound, or if the patient is poorly developed physically, a 5 pound dumb-bell from twenty to twenty-five times. This effort should call forth nothing more than a moderate amount of dyspnea and tachycardia, which subside in a minute or two.

Class II A patients show an excessive reaction to the dumb-bell test with marked dyspnea and tachycardia. This group embraces those who can perform the usual normal physical activities but who have discomfort in doing these. Such persons, however, have an increase in shortness of breath after climbing stairs, lifting heavy articles or walking up grades.

In Class II B there are the patients in whom the reaction to the dumb-bell exercise is so excessive that the exercise cannot be carried out on account of palpitation or dyspnea. Those patients who are unable to execute the more difficult features of ordinary physical activity, such as climbing two flights of stairs, or walking at an ordinary rate for a half mile, on account of fatigue, shortness of breath, or palpitation, are grouped under this class.

Class III includes those patients who cannot perform the simplest physical activity, as walking 200 or 300 feet or climbing one flight of stairs without resting or doing any housework without fatigue, shortness of breath or palpitation. A patient in class III cannot

perform the dumb-bell exercise more than five or six times.

In a series of more than a hundred cases, deaths from heart failure during labor occurred only in patients of classes II B and III. Thus, gravid patients of classes I and II A were considered and actually proved to be able to withstand the strain of labor. The duration, character, severity and effects of the extra load placed on the heart in labor are unpredictable and infinitely greater than would ever be imposed by any ordinary surgical procedure under a reasonably smooth anesthetic of even two or three hours' duration. It is therefore certainly safe to regard the patients of classes I and II as good surgical risks, those of class II B as fair and those of class III as poor.

DEFINITE DANGER SIGNALS

It is only in the presence of such lesions as (*a*) bundle branch block or (*b*) incontrollable auricular fibrillation, especially with hyperthyroidism, (*c*) syphilitic aortitis without or with (*d*) anginal failure, and (*e*) high grade congestive heart failure that general anesthesia, especially ether, is contraindicated. Especially is this so when there is any edema of the lungs.

If a general anesthetic is found to be necessary, nitrous oxide or, better still, ethylene is to be preferred as far as the circulation is concerned. Spinal or local anesthesia, even for cesarean section, is by far the safest method to use in gravidocardiac patients.

It is most desirable to reestablish circulatory equilibrium by the use of digitalization, coronary vasodilation, and rest in bed will promptly get most patients into a desirable condition for operation.

In the case of surgical conditions in patients with disease, it is often a matter of choice, the question being as to whether the patient is going to gain more by taking the risk, or whether it might not be better not to take the risk. In the obstetric cases, however, there is no choice; something must be done. The patients that present themselves late in pregnancy with labor imminent or even under way, and in cardiac failure, bring out that point forcibly. In pregnancy with mitral stenosis and congestive heart failure, a truly critical emergency exists. These patients must immediately be given careful attention; they must be put to bed in a hospital under careful medical supervision and kept there until complete restoration of compensation is accomplished before labor is induced or operation is undertaken.

The pelvic measurements and size of the fetus, length and difficulty of previous labors, the degree of completeness of the reestablished circulatory function and the character of the cardiac damage determine the procedure to be pursued in any given case. It is desirable always to make as short and easy as possible the second stage if labor is instituted or allowed to proceed. This can be accomplished by the use of instrumental aids in delivery. The use of a tight abdominal binder immediately after delivery is a prophylactic measure against postpartum collapse or shock.

In all patients who have had serious congestive failure, the chances of survival of the child in an anoxemic uterus are poor, and delivery should be contemplated as soon as a viable child can be expected; that is, at the end of seven and a half months' gestation. By far the safest and simplest method of delivery is cesarean section under local anesthesia. Sterilization can be accomplished at the same time with little difficulty. Most gravidocardiac patients, even those with mitral stenosis and serious congestive failure, will respond to carefully supervised medical care and can be subjected to operation with assurance of satisfactory results if every detail of preparation and of after-care is conscientiously attended to. The medical management determines in a large measure the degree of success of the whole undertaking.

SUMMARY AND CONCLUSIONS

Twenty-four cases of heart disease in pregnant women are grouped in the order of seriousness and the various complications commented upon. Disturbances in the mechanism of the heart beat in pregnant women are especially stressed.

The importance of electrocardiographic studies, repeatedly done, in gravidocardiac patients is emphasized.

Bundle branch block, its serious significance and the hopeful possibility of the temporary transient nature of the condition are demonstrated.

Auriculoventricular block, fibrillation, and the less serious abnormalities and their effects in the cardiac function are commented on and illustrated. The state of the heart muscle is of the utmost significance.

The alleviation of congestive heart failure before permitting labor or surgical delivery to proceed is found to be paramount for success. Ether was found to predispose to fatal pulmonary edema in patients with the lung congestion of mitral stenosis. Of general anesthetics, ethylene is the choice as far as the cardiac condition is concerned, but local anesthesia is by far the safest to use.

Acute rheumatic endocarditis occurring during pregnancy responded to treatment and subsided about as it does in nonpregnant individuals.

Extensive and usually fatal pulmonary thrombosis is shown to occur relatively frequently in instances of serious idiopathic myocardial degenerative changes.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DR. REID AND DRS. HERRMANN AND KING

DR. HAROLD E. B. PARDEE, New York: I want to emphasize the point which Dr. Reid attempted to bring out: that by statistical studies it should be possible to determine the effect of pregnancy on the longevity of these patients. The idea that they are hard to deal with is well founded, for the reason that so many of them develop cardiac failure and come under observation in the large hospitals for the first time. By proper prepartum care it should be possible to prevent serious cardiac failure and this is the feature of pregnancy complicated by heart disease that I particularly want to emphasize. Two things should be determined in every patient. First, it must be determined whether or not she has heart disease. A patient with heart disease may still be a good candidate for pregnancy, but she must be watched during pregnancy, the degree of cardiac reserve determined, and precautions taken to make sure that failure is not setting in. During labor particular care must be taken to recognize the onset of failure. The best procedure is to count the pulse and respiration every half hour. The pulse should not go over 105 or 110; the respiration should not go over 28 or 30. If they reach those figures it is a sign that cardiac failure has set in, and labor must be ended promptly. If labor is not far enough advanced, the patient should be given a large dose of morphine and allowed to rest. A great deal of harm is done by operative procedures during severe cardiac failure, particularly intra-uterine procedures through the vagina. Cesarean section seems to be well borne, but even this should not be done if the patient shows marked cardiac failure, if it is possible to wait for the results of

medical treatment. If a better state of cardiac function can be achieved, the mortality will be very low. Whether a woman can go through a pregnancy or not often depends on sociological rather than on pathologic factors. The same woman, if everything is done for her, might be able to go through without developing cardiac failure, whereas if she must take care of her children and her house she might not be able to do so. So sociology enters into the prognosis and also into the question of sterilization. The lesion should not be considered the sole determining factor. The cases of Drs. Herrmann and King show that serious cardiac failures may occur and yet even after this delivery may be successful.

DR. FREDERICK H. FALLS, Chicago: The main factor to know about in pregnancy complicated by cardiac disease is, What can the heart do? This should also serve as the criterion as to whether or not the patient should be allowed to become pregnant. If one finds the functional capacity of the heart good throughout pregnancy, even in the more serious types of cardiac diseases, pregnancy may continue to a satisfactory conclusion. I agree with practically everything presented in both papers in connection with the management of the cardiac case. Cardiac patients are apt to have premature labor and this may be relatively painless. Not infrequently, women with cardiac lesions, especially in the presence of decompensation, will have strong uterine contractions without knowing it or without letting the attendants know. Precipitate premature delivery may occur as a result. There is another point to be emphasized in connection with the handling of these cardiac patients: There may be a latent period after delivery or two or three days before a sudden collapse and death. I have seen this unfortunate experience two or three times. The patient seems to be entirely out of danger and suddenly there is a circulatory collapse and death. These patients should be observed and treated just as carefully post partum as ante partum. When acute dilatation of the heart occurs, I have used oxygen inhalation before and after the delivery with considerable beneficial effect. When cesarean section is indicated because of decompensated heart lesions, I do the classic operation with the patient in the modified Fowler's position. The operation is done under local anesthesia or a combination or local anesthesia with a little ethylene. I feel that this gas is safer than ether. Group 4 of Drs. Herrmann and King's cases, the toxic type of cardiac disease, I feel contains probably some cases that present a latent hyperthyroidism. I have seen patients with serious myocarditis secondary to hyperthyroidism. These patients improved markedly after pregnancy and labor were over. I feel that the cooperation of the internist should be sought before the follow-up period. When possible, the internist should be consulted early in pregnancy.

DR. HYMAN J. EPSTEIN, New York: I am not sure that, whenever a cardiologist gives a bad prognosis in any case, the prognosis is bad. Often the cardiologist has advised against pregnancy and the young mother did not take the advice and delivered absolutely normally and without any complications. On the other hand, I have had cases that I thought were absolutely safe, and the electrocardiogram corroborated the observations of the cardiologist and yet such patients died, not during labor but immediately after labor. Of course, there is an explanation. Pregnancy is a pathologic process severely affecting previously damaged organs. And just as the kidney can become damaged when least expected, is it not reasonable to assume that a previously damaged myocardium may succumb to pregnancy? Usually young women can go through a pregnancy quite well. But an older one who has had several pregnancies is more apt to die. Not enough stress has been laid on the effect of pregnancy on a damaged myocardium. If the cardiologists would look on the heart just as much as on a damaged kidney, these patients could be advised before they become pregnant whether they should or should not take the risk. When they are pregnant, there is no better way than conservative expectant treatment, the cardiac condition being treated and the pregnancy being left to nature. Cesarean section is not more helpful than normal delivery. The fact of the matter is that it is not labor that kills them but the pregnancy. The term labor, in the sense of work, is a misnomer; especially when one sees how easily the cardiac patients go through the process of delivery.

DR. W. D. REID, Boston: What Dr. Epstein said about prognosis would be nice if we felt we could do it. I do not think it is possible for any man, whether he is a cardiologist or not, to determine prognosis so accurately. But a considerable estimate can be made. What I wanted to stress is that there is some evidence that 5 or 10 per cent of women with definite heart disease die during pregnancy. Those are average figures. I would like to see a bit more optimism and say that in from 90 to 95 per cent of these proved cases the woman survives. It is because I was trained to believe so differently that I have had to delete some of my own pessimism. The problem can be very obscure. It seems to me that much of it is not so obscure but is simpler and clearer; but, of course, when the percentage of nonrheumatic hearts is smaller, it requires more and more knowledge of internal medicine and cardiology to pick them out. It seems, though, that the physician in charge of the pregnant cardiac patient, be he general physician or obstetrician, must know a good deal about internal medicine and heart disease, and when possible he should avail himself of one who knows those fields better; otherwise he has to do it alone. The best way, as in many other things, is probably through cooperation.

DR. G. R. HERRMANN, New Orleans: I have little more to add. The points commented on by Dr. Pardee and Dr. Falls were well taken. I would be willing to agree with them in toto, and even with some of Dr. Epstein's radical comments. Our errors are many from the point of view of exactness in internal medicine, but we do have criteria to follow that are fairly reliable in I might say 75 per cent of the cases. That is about as high an average as can be expected. The ordinary criterion that can be followed with considerable safety is that if the woman is up and about in her pregnancy and able to carry along her ordinary activities of life without much increase in dyspnea other than that from the mechanical factors of pregnancy, she will be able to go through her labor without much difficulty. In other words, if she has a pretty good cardiac reserve she is a good risk regardless of her valvular defects. This can be further estimated by the simple dumb-bell test that Dr. Pardee has brought forth and confirm one's opinion as to her myocardial efficiency. Prognosis is merely a guess, in most cases especially, in the prospective bride or primiparous patient, and here again the sociological point which Dr. Pardee brought out is of much importance. If the woman is going to be in such an economic state that she can have help throughout her life and all the cares of the children will not be on her shoulders, she may expect to live out the ordinary span, as Dr. Reid said, without much added distress. If, however, she is of the great middle class and has a mitral stenosis with already some symptoms of failure, her prospects are mighty poor for a long and full married life without distress, cardiac invalidism and early death.

When Parents Are Related.—When parents are closely related, the gene defects of the two are likely to lie in the same pairs. For they have gotten part of their genes from the same ancestors, and some of these common genes are likely to have been defective. In unrelated parents, on the other hand, the gene defects have arisen independently, in different ancestors, and are therefore not likely to lie in the same pairs. This is the reason why unrelated parents, and particularly those belonging to different racial groups, or coming from different parts of the country, frequently give superior offspring. All this has its obverse side. By the production of new combinations in which the genes of the parents supplement each other, superior individuals are produced. By the taking apart of these combinations and the making of new ones in which the genes are not supplementary, inferior individuals are produced. The method of recombinations may work to produce defectives as well as normals, fools or knaves as well as geniuses. . . . When there is mating between two normal individuals each of whom have certain defective genes in the same pairs, to some of their offspring each will contribute a defective gene of the same pair. The result is the production of defective individuals.—Jennings, H. S.: The Biological Basis of Human Nature.

TREATMENT OF NONTUBERCULOUS SUPPURATIVE PNEUMONITIS, ABSCESS AND BRONCHIECTASIS *

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There exist such widespread pessimism and confusion with regard to the treatment of bronchiectasis, abscess and allied nontuberculous suppurative conditions of the lung that we believe it should be of value to present what we consider the most useful therapeutic procedure in view of our own clinical experience and the opinions of others.

The term "suppurative pneumonitis" has been widely adopted to include the various nontuberculous cavernous and noncavernous pulmonary lesions and their combinations in the same patient. While the term is accurate and in the interest of simplicity, it gives no satisfactory conception of the many different forms in which this disease presents itself, each of which demands highly individualized consideration and flexibility with respect to treatment.

Until relatively recently, accurate diagnosis of the exact character of the lesions of suppurative pneumonitis and the factors that determine their onset and progression or regression have been little understood, and effective treatment has therefore often been a matter of chance. Indicative physical signs are often surprisingly fewer than the extent of the lesions would seem to promise, and they are not rarely misleading, as may be roentgenograms of perfect quality. Iodized oil [1] pneumograms (fig. 1) and bronchoscopy, together with a better appreciation of the etiologic factors and of the tremendous value of the patient's medical history, are largely responsible for increasing accuracy of diagnosis and for the development of therapeutic measures and their increasing effectiveness.

We feel strongly that treatment of the early or noncavernous stage of pulmonary suppuration is a problem that is chiefly concerned with local rest and the patient's general resistance and is, therefore, almost always the concern of the internist. Appropriate nonsurgical treatment in this phase of the disease frequently will result in cure. If it does not, and the patient enters into the next phase of the disease when extension of the pneumonitis has ceased and when cavitation is well established and natural bronchial drainage may be inadequate, the problem often centers on mechanical factors and demands some type of surgery for its successful solution. At this time surgery is conservative, not radical, therapy in that it tends to prevent further destruction of pulmonary tissue with the associated dangers of hemorrhage, extension of the suppurative pneumonitic involvement, cerebral abscess and the permanent damage to kidneys, heart and vessels that sometimes complicates prolonged suppuration. We believe that persistence in nonsurgical measures beyond the optimal time for surgical intervention not rarely is chiefly, although indirectly, responsible for the fatal outcome that may follow a too late operation that is performed out of pity in the hope that a single chance of recovery is better than none at all. Internists often mistakenly tend to attribute these bad results to surgery rather than to their own delay in recommending surgery during the period when its opportunity to cure was at its best.

Briefly, there is an early stage of suppurative pneumonitis when medical treatment is best and often cures. If it fails to produce more than slight improvement, the patient enters a stage of the disease when surgery may offer incomparably the best chance of cure. This period is succeeded by a terminal stage in which the chance of cure by any means has been practically lost and in which operation may be performed only with the understanding that the risk is great and the chance of cure slight.

EARLY STAGE OF SUPPURATIVE PNEUMONITIS

The lesions of the earliest stage of suppurative pneumonitis are usually a purulent infiltration of the alveoli and interstitial tissue of the lung with an associated infection of the bronchioles and smaller bronchi. As these lesions age, a varying amount of new connective tissue may form and contribute an element of fibroid pneumonitis. The causes of the lesions are many and have an obvious bearing on prophylaxis and treatment. Chief among the causes are the following: 1. Aspiration of infected material, with the consequent inflammatory reaction, may more or less completely occlude the bronchi and cause stasis-infection of the lung distal to the occlusion if the obstruction is not soon overcome by action of the cilia, coughing, deep breathing or bronchoscopic aspiration. The most commonly aspirated material comes from infected mouths or sinuses. Such aspiration may occur during sleep but most frequently during operations on the nose, tonsils, mouth and upper part of the abdomen or during general narcosis for operation on any part of the body. Pus may reach and infect the lung through a bronchopleural fistula or from an empyema or subphrenic abscess, or food may spill into the tracheobronchial tree because of pharyngo-esophageal diverticulum or esophageal obstruction by cancer or benign stricture or because of an esophageobronchial fistula. 2. Aspiration of any type of foreign body may infect the lung. 3. Prolonged bronchial obstruction by intrabronchial or extrabronchial neoplasms, aneurysms, strictures, foreign bodies and mucous plugs such as are believed to be responsible for postoperative atelectasis may cause suppurative pneumonitis through stasis of trapped secretions. 4. Incomplete resolution of pneumonia may be the cause. 5. Bacteremia may be responsible for emboli that establish infected pulmonary infarcts, or sterile infarcts may become infected by organisms normally resident in the lung. 6. Pulmonary infection occasionally occurs from extension of infection through the lymphatics from neighboring foci. 7. Wounds of the lung, especially when a foreign body remains, may cause a suppurative pneumonitis.

Indications for treatment are clearly implied by some of the etiologic factors just mentioned, as bronchoscopic or surgical removal of foreign bodies, drainage of an empyema, treatment of sinus disease, infected gums and alveoli.

Removal of secretions that lie within the bronchi and, through stasis, tend to maintain and increase infection within the lung, is of great importance. Coughing that raises these secretions is of the utmost value; only such

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* Owing to lack of space, two illustrations have been omitted. The complete article appears in the Transactions of the Section and in the authors' reprints.

* Read before the Section on Surgery, General and Abdominal, at the Eighty-First Annual Session of the American Medical Association, Detroit, June 25, 1930.

1. Various methods of introducing the oil are discussed by Pritchard, Stuart; Whyte, Bruce; and Gordon, J. K. M.: Radiology 8: 104 (Feb.) 1927.

coughing as is "dry" or excessive should be checked by opiates. In the very early stages of bronchial occlusion by secretions, deep breathing that is voluntary or, better, stimulated by a few minutes' inhalation through an anesthetic mask of 5 per cent carbon dioxide in 95 per cent oxygen every fifteen or thirty minutes or every one, two or four hours (according to the need for and effectiveness of this treatment) and followed by voluntary coughing usually will succeed in evacuating the secretions. Postural drainage by placing the patient on one side or the other, or with the upper part of the body more dependent than the lower, will frequently cause evacuation of secretions when other methods have failed. The most effective method of postural drainage for most patients who are not too ill and whose secretions lie in the lower half of the lung is placing the patient across the bed with his head and shoulders close to the floor (fig. 2). When these measures fail, one or more bronchoscopic aspirations may be rewarded by an excellent result.

Patients in the early stages of suppurative pneumonitis, including those who may be afebrile, should be required to remain at absolute rest in bed until several weeks after all sputum and other important symptoms of the disease have disappeared and until the physical signs and roentgen evidence of the pulmonary infiltration have largely disappeared. This has been emphasized by Stuart Pritchard.[2] Insistence on this is probably vital in combating recrudescences of the disease and development of the grave conditions of abscess or bronchiectasis.

Further measures of value in the management of these patients by the so-called sanatorium regimen are the stimulation of fresh air, a high caloric diet of not distasteful bulk, great fluid intake and, when necessary, transfusions of blood. The general plan of treatment just described, with suitable variations, should be followed in all stages of suppurative pneumonitis, including abscess and bronchiectasis. When spirochetes are present in the sputum in the acute and subacute stages of cavernous or noncavernous suppurative pneumonitis, several intravenous courses of neoarsphenamine may prove of great value. In the chronic stage the lesser chance of a favorable result should be weighed against the greater chance of damage to kidneys and liver.

Fig. 3.—Arrows indicate area of chronic suppurative pneumonitis into which iodized oil has not penetrated. Sputum, 75 cc.; temperature, 101 F.; no foreign body by bronchoscopy. Temporary interruption of phrenic nerve was followed by gradual disappearance of lesion and symptoms.

If these various measures fail to cause a sufficiently rapid improvement in the condition, we believe that a temporary interruption of the phrenic nerve on the diseased side is definitely indicated (fig. 3). The resulting paralysis and rise of the hemidiaphragm relax and rest the inflamed lung and are important factors contributing toward cure. From four to six months later the diaphragm will begin to function again.

2. Pritchard, Stuart: Nat. Tuberc. A. Tr. **23**: 222, 1927.

ABSCESS [3]

In spite of faithful treatment, an area of suppurative infiltration may rapidly or slowly be excavated by necrosis to become an abscess or multiple abscesses, or by the action of putrefactive organisms to become gangrenous. Even now, if less than from six to ten

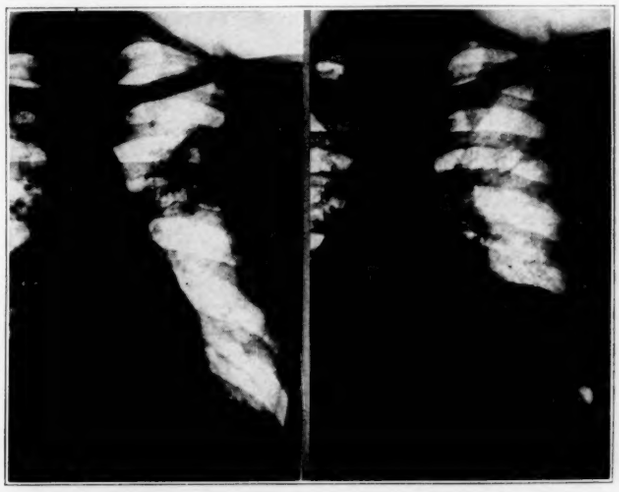

Fig. 4.—Left, suppurative pneumonitis with large irregular abscess eleven weeks after extraction of abscessed teeth; 75 cc. of foul sputum; loss of 25 pounds (11.3 Kg.). Right, disappearance of lesions and symptoms five months after temporary interruption of phrenic nerve; six weeks after operation lesions and symptoms were greatly improved.

weeks has elapsed since the onset of the disease, continuation of the same treatment will bring about a cure in perhaps 30 per cent of cases of abscess. Drainage of an abscess cavity at this early stage is dangerous because, through direct trauma to the inflamed lung combined with the disturbance in the function of coughing and expectorating that follows wide opening of the abscess and of the peripheral bronchi to atmospheric pressure, the suppurative pneumonitis may be caused to spread. In those patients in whom emptying of the abscess through the bronchi is unsatisfactory in spite of postural drainage, bronchoscopic aspirations should be given a fair but not too prolonged a trial. Although the bronchoscopist rarely is able to enter the abscess cavity with the aspirator, he does aspirate the secretions from the draining bronchi; this manipulation is followed by much coughing, which probably tends to empty the abscess itself and, at any rate, often seems responsible for cure. We feel that therapeutic intrabronchial instillations of iodized oil have not sufficiently proved their value in either abscess or bronchiectasis. We have had no experience with Castex, Heidenreich and Repetto's [4] intrabronchial neoarsphenamine.

If the abscess still persists, a temporary phrenic nerve interruption should be performed. We have seen most satisfying results to follow it in the prechronic stages (fig. 4), as well as only temporary improvement or, occasionally, no improvement at all; but we have never seen harm from it. This operation has served us better than any other measure in the control of all

3. Miller, J. A.: New York State J. Med. **27**: 43 (Jan. 15) 1927. Pool, Eugene; and Garlock, J. H.: Ann. Surg. **90**: 213 (Aug.) 1929. Lockwood, A. L.: Surg. Gynec. Obst. **35**: 492 (Oct.) 1922. Edwards, A. T.: Brit. J. Surg. **17**: 102 (July) 1929. Sergent, E.; Baumgartner, A., and Kourilsky, R.: Bull. de l'Acad. de méd., Paris **101**: 298 (Feb. 26) 1929.

4. Castex, M. R.; Heidenreich, A., and Repetto, R. L.: Bull. Acad. de méd. **95**: 131 (Jan. 5) 1926.

degrees of hemoptysis in abscess, as well as in bronchiectasis.

A few cases of abscess, perhaps complicated by dangerous hemoptysis, that persist may be treated by artificial pneumothorax and the results are occasionally astonishingly good. We agree with Landau and Held [5] that pneumothorax, if used at all, should be limited to the early stages of abscesses and preferably those in the upper part of the lung where adhesions seem to form later than over abscesses in the lower lung. We further believe that pneumothorax should not be used for those abscesses that dwell in the peripheral portion of the lung, because here adhesions usually form very early and either prevent an adequate collapse of the involved portion of the lung by the pneumothorax or in being stretched may tear the infected lung and be responsible for a highly dangerous form of empyema. For this reason every pneumothorax should be induced with great caution, not more than 300 cc. of air being used for each filling until the fluoroscope and roentgenograms show that no adhesions exist in the neighborhood of the infected portion of the lung. Also, the peripheral type of abscess does less well with pneumothorax than does the hilar type because the necessary bronchial drainage is usually less free.

It should be recognized that any extensive pneumothorax that is unsuccessful may create a condition of great danger that the surgeon must face if drainage of the abscess should later prove necessary. The reason is that expansion of that part of the lung which is to be entered for drainage, and its firm adhesion to the thoracic wall, must be obtained before drainage is undertaken in order to prevent spilling of the pus from the abscess into the pneumothorax, which would cause a highly dangerous empyema. We advise against the use of artificial pneumothorax in abscess except under unusual circumstances.

The lung and its contained abscess cavity may be relaxed or compressed locally by the operation of extrapleural pneumolysis. Sauerbruch [6] and Mittledorpf [7] are enthusiastic about this operation and use paraffin to fill the space created between the parietal pleura and ribs. F. P. Miller [8] has devised a useful pneumatic bag as a filling. Roux-Berger [9] reported three successes and two failures after extrapleural pneumolysis and considers the operation best for multiple abscesses. We have employed it only once in nontuberculous cavitation, using the pectoral muscles as a filling, with complete success in a chronic upper lobe abscess with excellent bronchial drainage. Sauerbruch states that if the operation does not close a cavity it will cause the formation of pleural adhesions and make future surgical drainage safer. Pneumolysis may prove valuable in severe hemoptysis.

A considerable number of abscesses will remain open and more or less poorly drained by the bronchi in spite of the best of medical treatment combined with bronchoscopic aspirations and interruption of the phrenic nerve and perhaps also with pneumothorax or pneumolysis. In general, if this is so six, eight or ten weeks (according to the circumstances) after the onset of the disease, and if the patient is not clearly showing signs of genuine improvement, surgical drainage of the abscess must not be delayed, because surgery offers little hope in the later stages of the disease. Sauerbruch [6] is of the opinion that drainage should not be postponed more than eight weeks after the onset of a metapneumonic abscess and that it should be used earlier for putrefactive suppuration or gangrene.

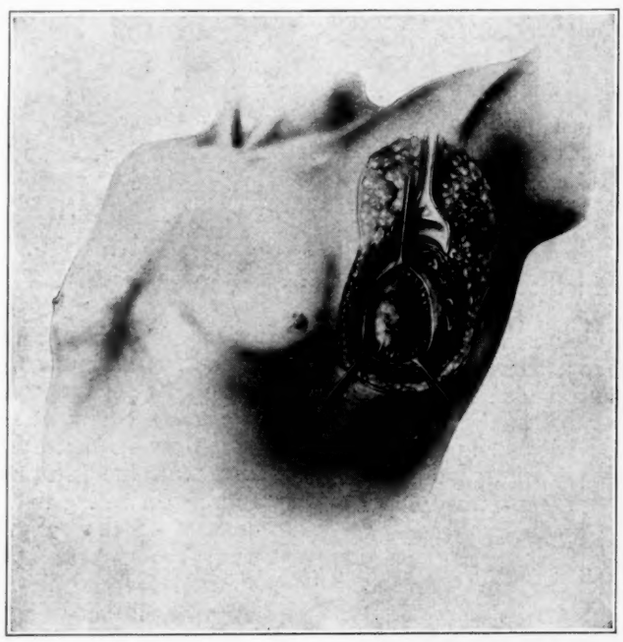

Fig. 5.—Axillary approach for drainage of upper lobe abscess: After a disk of parietal pleura was removed, the lung was found apparently adherent to the parietal pleura, but when the edges of the pleura were lifted several nonadherent places were discovered inferiorly that required packing for several days before the abscess could be safely opened without causing an empyema.

The technic of the operation will not be described here, but we will mention several aspects of the subject that we consider important:

1. Local anesthesia or no anesthesia at all during cauterization of the insensitive lung, is superior to inhalation narcosis, which we believe increases the risk of causing extension of the pneumonitis.

2. The axillary is preferable to the anterior approach in most abscesses of the upper lobe; the posterior or posterolateral is the obvious approach to the lower lobe.

3. Removal of ribs wide of the limits of the abscess is preferable to restricted resections in that it affords a safe field of exposure for the operation and later aids in closure of the abscess and operative defect by permitting sinking in of the decostalized thoracic wall.

4. One of the greatest technical dangers of the operation, and one that must be avoided, is infection of the pleurae when the visceral and parietal pleurae are not completely and firmly adherent in the field of operation. Even if exposure of the external surface of the parietal pleura reveals it as opaque and even if the lung cannot be seen moving with respiration beneath it, we excise a disk of parietal pleura five or more centimeters in diameter before entering the lung with either a needle or a cautery. Further, before opening the lung, we lift the entire remaining cut edge of parietal pleura in order to see whether or not it and the visceral pleura are solidly adherent and serving as a complete barrier between (*a*) the pus that will flow against it after opening of the abscess and (*b*) the pleural cavity that may

5. Landau, A., and Held, J.: Ann. de méd. **25**: 441 (May) 1929.
6. Sauerbruch, F.: Die Chirurgie der Brustorgane, ed. 3, Berlin, Julius Springer, 1928, pp. 811-905.
7. Mittledorpf, K.: Deutsche Ztschr. f. Chir. **212**: 17, 1928.
8. Miller, F. P.: Personal communication to the authors, Feb. 15, 1930.
9. Roux-Berger, J.-L.: Bull. et mém. Soc. de chir. de Paris **47**: 268, 1921.

be unobliterated by adhesions beyond that barrier. Frequently we have seen only one or two tiny defects in this barrier of pleural adhesions that warned against opening the abscess until gauze packing for several days had caused new adhesions to close these openings (fig. 5). If exposure of the parietal pleura should reveal it as thin and not adherent to the lung it must, of course, not be opened at all until several days of gauze packing against it have caused firm adhesions through which the abscess may be safely drained at a second stage of the operation. Sewing the lung to the parietal pleura is dangerous because organisms may pass through the needle tracks from the lung into the pleural cavity.

5. We are opposed to the use of a rubber tube to drain an abscess. Even though soft, it may, by pressure necrosis, erode the already ulcerated wall of a blood vessel and cause a dangerous hemorrhage. We prefer to cauterize a wide opening to the abscess—wider than the abscess itself, unless it be a huge one—so that the abscess may be packed with medicated gauze that is moist or treated with petrolatum every one or two days until the cavity has filled in from its very bottom.

6. The abscess should be kept packed snugly with moist medicated gauze or gauze on which petrolatum has been spread, so as to occlude the open bronchi. If this is not done, or when a tube is used for drainage, coughing tends to be ineffective in raising secretions from the lung, because a part of the force of the cough is dissipated through the open bronchi.[10] No attempt should be made to close a residual bronchocutaneous fistula until all sputum and all purulent discharge from the wound have ceased; this cannot be expected if a second inadequately drained abscess or a bronchiectasis is associated with the originally drained abscess. Otherwise most small fistulas will close spontaneously or may be aided by occasional cauterization of the mouth of the fistula with a stick of silver nitrate. If a patient with a large fistula wishes to avoid such inconveniences as never taking a tub bath and always wearing a small dressing, the bronchial fistula may be closed by mobilizing its end for about 1 cm., excising the scar at its mouth, closing the open bronchus by suture, and covering it with a flap of neighboring extracostal muscle, pedicled at the edge of the defect in the lung and thoracic wall, and finally mobilizing and closing the skin. Properly performed, this operation results in a large proportion of primary closures. Lebsche[11] has described an operative method of closing multiple bronchial fistulas.

Extrapleural paravertebral thoracoplasty is not indicated in any but the chronic stage of abscess; here its best results are obtained in abscesses with thin compressible walls or in small single or multiple abscesses, preferably those with which there is much intrapulmonary fibrosis. Persistence of sputum or an undue amount of discharge from the wound several weeks after drainage of an abscess probably indicates that there is a second abscess (or possibly an associated bronchiectasis) that requires drainage, even though it is not evident roentgenologically as a cavity with a fluid level (fig. 6).

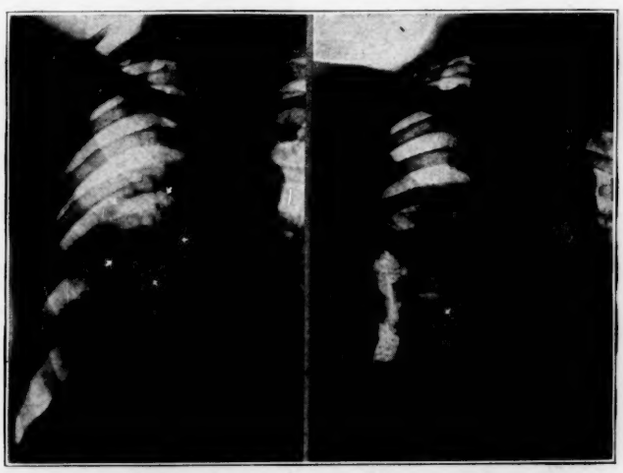

Fig. 6.—Left, abscess filled with air and pus seven weeks after partial gastrectomy; arrows indicate limits of abscess as determined the next day at open operation. Right, clear area lateral to costal stumps due to operative defect; arrow indicates position of a separate abscess, 9 by 4 cm., containing pus but no air, suspected when sputum did not disappear after drainage of other abscess and drained nine days after first operation.

Many cases of abscess that have not been drained at the proper time, and some cases that have been so drained, proceed slowly or rapidly to extension of the suppurative infiltration within the originally involved lobe and to other lobes. Cavitation is likely to follow and as a result there are a number of cavities of various sizes that either intercommunicate or are isolated from one another. Patients with such abscesses are usually in poor general condition and are not good operative risks.

Certain very extensive multiple abscesses cannot be well drained in the ordinary sense. For them, provided they are confined to one lobe, some type of lobectomy should be considered, because only complete eradication of the diseased tissue can cure them.

BRONCHIECTASIS [12]

It is not clearly understood why some cases of noncavernous suppurative pneumonitis that do not heal progress to abscess formation and why others progress to bronchiectasis. One obvious factor is that location of the principal lesions in the parenchyma determines abscess formation and in the bronchial walls bronchiectasis. David Smith[13] believes that the degenerating action of Vincent's spirochetes on the bronchial walls is responsible for their dilatation in much the same way that the spirochetes of syphilis are responsible for aneurysm of the aorta. It seems likely that, when fibroid pneumonitis is associated with degeneration of the bronchial walls, contraction of the fibrous tissue within the lung tends to dilate the bronchi by traction on their walls. This most frequently occurs after incomplete resolution of a pneumonia and in chronic empyema. Sauerbruch[6] is of the opinion that many cases of bronchiectasis are of congenital origin.

If, as we believe, a large proportion of cases of bronchiectasis develop more or less slowly from the initial lesions of simple suppurative pneumonitis, it is of great importance that every effort be made to cure these initial lesions before they become transformed into bronchiectases. We have discussed under "Early Stage of Suppurative Pneumonitis" the prophylactic and therapeutic measures that we consider best.

10. Sergent, Baumgartner and Kourilsky (footnote 3).
11. Lebsche, cited by Sauerbruch (footnote 6).

12. Lilienthal, Howard: Thoracic Surgery, Philadelphia, W. B. Saunders Company **2**: 82-218, 1925. Robinson, Samuel: Surg. Gynec. Obst. **24**: 194 (Feb.) 1917. Davies, H. M.: Surgery of the Lung and Pleura, London, Oxford University Press, 1930, pp. 160-187.
13. Smith, David: Relation of Vincent's Angina to Fusospirochetal Disease of the Lungs, J. A. M. A. **94**: 23 (Jan. 4) 1930.

Therapeutic procedure for an established bronchiectasis varies greatly according to the following conditions: 1. Whether the lesions are limited to one or more lobes, as determined by staged iodized oil bronchography of all lobes of both lungs. 2. The amount and foulness of the sputum and whether or not there are hemoptyses. 3. The general condition and age of the patient, his capacity for work and his mental attitude toward his disease. 4. The frequency of fresh attacks of bronchopneumonia and whether the disease has a tendency to be progressive or remain quiescent.

Bronchography occasionally reveals an extensive bronchiectasis in a patient who has no sputum—the bronchiectasis sicca of Bezançon. This condition, which implies little or no infection in the bronchial walls, is in our experience usually encountered in an upper lobe in which drainage is downward toward the hilus, although we have also seen it in the lower lobe. It is commonly associated with a fibroid lung and traction displacement of the mediastinal organs. In these cases the patients should be especially careful to avoid "catching cold" that might permanently establish infection in the bronchi. We believe that permanent interruption of the phrenic nerve, phrenicectomy, is indicated to help to satisfy the contraction of the fibrous tissue within the lung, which it does through the resulting rise of the paralyzed hemidiaphragm.

In all cases of bronchiectasis there is a special indication to treat an infected mouth and sinuses and to search with the bronchoscope for an intrabronchial foreign body that may not be visible, roentgenologically. Chevalier Jackson [14] states that 98 per cent of his cases of suppurative pneumonitis caused by a metallic foreign body cleared up completely after removal of the foreign body even when the symptoms had existed for years, but that a lesser percentage became cured when the foreign body was vegetal. In our experience, disappearance of sputum in the chronic cases has occurred much less often than it did in Jackson's experience. Obstruction of the bronchus by cancer or by benign tumor should be ruled out, as should an empyema with bronchopleural fistula.

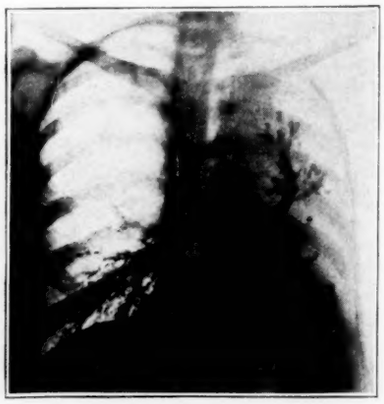

Fig. 7.—Saccular bronchiectases from apex to base of left lower lobe after sixteen years of profuse, foul and occasionally bloody expectoration. Two months before treatment the patient had a 500 cc. hemoptysis. Phrenicectomy and faithful postural drainage reduced 250 cc. of foul sputum to 20 cc. of odorless, bloodless sputum in seven months. The patient gained 12 pounds (5.4 Kg.).

We have had no experience with vaccines. Sergent [15] writes that he has seen no good from their use. With a picture of the pathologic anatomy of the lesions of bronchiectasis in mind it becomes apparent that cough mixtures can be of no real value, with the possible exception that such drugs as creosote may decrease the odor of the sputum. Blood transfusions should be used if the patient is very anemic and particularly as preparation for a major operation.

Occasionally bronchiectasis is associated with a large pulmonary abscess, a "bronchiectatic abscess," that may demand drainage as any other abscess would. Such drainage is likely to be followed by a bronchocutaneous fistula that will not close because of persistence of infection behind it. The multiple small abscesses which are, in fact, the bronchiectases themselves should not be drained in the ordinary way because such drainage is ineffective. Extensive drainage by staged cautery lobectomy will be considered later.

Bilateral bronchiectasis, or that involving both the upper and the lower lobes on one side, or unilobar bronchiectasis in a patient in poor general condition should not be treated radically. The mild general measures previously described may prove useful, and residence in an equable dry climate may improve sinusitis and lessen the incidence of attacks of bronchitis and bronchopneumonia which tend to increase the bronchiectases; also the sputum may be reduced in amount. Most important of all in the palliative treatment is the persistent use of postural drainage every two, three or four hours (according to the rapidity of production of sputum) during the waking hours and, if indicated, one or more times during the sleeping hours. By keeping the dilated bronchi relatively free from their stagnant secretions, infection in their walls tends to subside, the amount of sputum to be reduced, the odor and hemoptyses to lessen, and the patient's weight and general condition to improve. If postural drainage is ineffective in draining the purulent collections, weekly, or oftener, bronchoscopic aspirations should be tried. They often greatly relieve the patient but can scarcely be expected to bring about a cure.

When the disease is confined to one lower lobe, as it often is, and when the patient is in good general condition, more active measures may be employed. We believe that phrenicectomy should be the first to be tried (fig. 7). It often reduces the quantity and odor of the sputum and otherwise improves the patient. Sometimes it has no effect and a few times we have seen an increase in sputum but without apparent harm. In occasional early cases it alone may cure.

Artificial pneumothorax may cure an early but rarely a late case. Considerable improvement is occasionally obtained during maintenance of the pneumothorax, but this improvement is often partly or completely lost when the pneumothorax is abandoned and the lung expands. Considerable improvement during maintenance of the pneumothorax may, however, serve as an indication for an extensive extrapleural thoracoplasty, in the expectation of making the improvement permanent. We are disinclined to use pneumothorax except, perhaps, after phrenicectomy in the early stage of bronchiectasis, as permanently satisfactory results are not frequent and there is some danger of a complicating empyema.

Extensive staged extrapleural thoracoplasty has its principal value in (1) the rather rare type of bronchiectasis that is limited to the smaller or peripheral bronchi that are compressible because of their incomplete cartilaginous framework and (2) bronchiectases that are accompanied by great traction-displacement of the mediastinal organs, a condition that occasionally occurs as a complication of chronic empyema.

In the usual central type of bronchiectasis, in which the lesions occupy the larger bronchi, our experience agrees with Denk's [16] and Sauerbruch's [6] that thoraco-

14. Jackson, Chevalier: Surg. Gynec. Obst. **42**: 305 (March) 1926.
15. Sergent, Emile: Internat. Clin. **2**: 20 (June) 1926.
16. Denk, W.: Deutsche Ztschr. f. Chir. **221**: 186, 1929.

plasty is often insufficiently effective and that the operative risk from aspiration pneumonia and cardiocirculatory failure is much greater than in tuberculosis. Hedblom,[17] Harrington,[18] and J. E. H. Roberts,[19] have, however, reported good results from thoracoplasty.

If, after all the measures we have been discussing and that may be proper for a given patient have been tried, the patient is in reasonably good general condition and if he continues to have abundant foul sputum, perhaps with hemoptyses, and to remain in a mildly toxic condition, a lobectomy must be considered because now nothing but actual removal of the purulent, abscess-laden tissue can be expected to rid him of his obnoxious, dangerous disease. The miserable invalidism and usually eventual fatal outcome in advanced bronchiectasis are obvious reasons favoring a lobectomy. David Stewart[20] found that 60 of his patients had had 240 complications among them.

We are convinced that two-staged lobectomy is now firmly established as an operation of tremendous value for such patients as are discussed in the preceding paragraph. The operative mortality ranges between 20 and 30 per cent in the most experienced hands, which is a 50 per cent improvement within a period of the past three or four years. Krampf,[21] however, reports for Sauerbruch only a 10.7 per cent mortality in twenty-eight cases. Thoracic surgeons have profited much from their earlier mistakes and it seems quite likely that their more recent series of cases will show still lower operative mortality figures. The improvement that follows total removal of the only diseased lobe is truly remarkable and is in striking contrast to the pitiable condition of the patients before operation. Sputum usually disappears completely and, in our experience, which has been chiefly with the exteriorization method of lobectomy, most of our patients who have not been operated on too recently have had their residual bronchial fistulas completely closed by a plasty of pedicled muscle and two have closed spontaneously. Such patients may be classified as completely cured. Two of our ten patients were 5 years old at the time of operation, four others were less than 20, and all were less than 36. Cure at such age implies a great many years of normal life, whereas the outlook of the same patients without operation would have been wretched and almost hopeless.

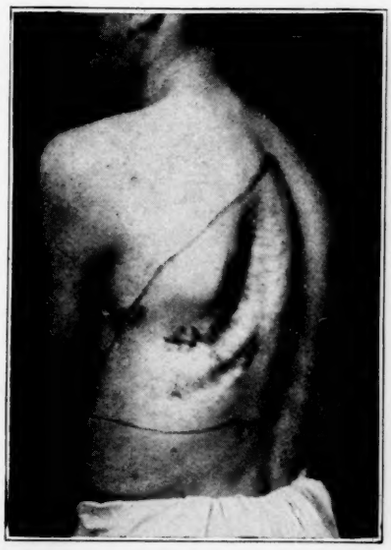

Fig. 8.—Eight months after total removal of left lower lobe by two-stage exteriorization technic and ultimate occlusion of bronchial fistula and filling of residual pleural cavity by pedicled muscular graft. Anatomic boundaries of lower lobe before operation are outlined with ink. Patient had benefited little from phrenicectomy and prolonged postural drainage. Before lobectomy, 300 cc. of purulent sputum; none afterward.

When in a given case we believe that the indications for lobectomy are clear, we place the facts with respect to risk and improvement squarely before the patient or his relatives. Almost all choose the operation if for no other reason than that the frequent coughing and abundant foul sputum during months or years have made life a burden. Failure of the various therapeutic measures that have been systematically tried before lobectomy is recommended tends strongly to influence the patients to accept lobectomy.

For cases in which the pleurae over the diseased lobe are extensively adherent, we recommend the staged cautery lobectomy that Evarts Graham[22] has so ably developed. Performed as Graham directs, the operation is an excellent one.

For cases in which the pleurae of the diseased lobe are not extensively adherent, and most are not, we believe that the exteriorization lobectomy described by Whittemore[23] is the operation of choice. Alexander will soon publish a description of certain modifications in the technic that seem to have proved of great value. Sauerbruch[6] favors extrapleural pneumolysis and Zaaijer and Suermondt[24] favor intrapleural pneumolysis and gauze packing as a preliminary to lobectomy. Although we have not used this, we at present prefer, on theoretical grounds, the exteriorization technic we use. Some surgeons advise extensive paravertebral thoracoplasty preliminary to lobectomy. We doubt whether this is important in bettering the operative conditions for lobectomy and we believe that it should not be used chiefly for this purpose because (1) it has a considerable operative mortality of its own and (2) it practically excludes from respiratory function the remaining lobe on the operated side, whereas this lobe continues to function after lobectomy by the exteriorization or cautery technic.

SUMMARY

1. Suppurative pneumonitis not rarely complicates operations, pneumonia and infections of the mouth and sinuses.

2. In the early stages of the disease, medical treatment is best and often cures. If it fails after a reasonable trial, surgery frequently offers an excellent chance for cure, provided operation is not unduly delayed.

3. The most useful medical and surgical methods of treatment are: sanatorium regimen; frequent postural drainage; elimination of mouth and sinus infection; neoarsphenamine given intravenously; bronchoscopic removal of foreign bodies and secretions; artificial pneumothorax; temporary or permanent interruption of one phrenic nerve; extrapleural pneumolysis; extrapleural thoracoplasty; drainage of an abscess; lobectomy.

4. Selection of the best therapeutic procedure for each of the types of suppurative pneumonitis must be highly individualized. The simplest appropriate measure should be chosen first, and as soon as it is seen to be inadequate the next more radical one used.

5. This article undertakes to describe what we believe to be a logical succession of the nonsurgical and surgical measures that we have found of value for various types of suppurative pneumonitis.

17. Hedblom, Carl: Uncomplicated Unilateral Bronchiectasis, Arch. Surg. **14**: 389 (Jan.) 1927.
18. Harrington, S. W.: The Surgical Treatment of Pulmonary Suppuration, J. A. M. A. **87**: 1200 (Oct. 9) 1926.
19. Roberts, J. E. H.: Bronchiectasis: Recent Advances in Treatment and Diagnosis, Lancet **2**: 1106 (Nov. 27) 1926.
20. Stewart, D. A.; Pritchard, J., and Ross, E. L.: Canad. M. A. J. **17**: 1116 (Oct.) 1927.
21. Krampf, F.: München. med. Wchnschr. **76**: 870 (May 24) 1929.
22. Graham, E. A.: Cautery Pneumectomy for Chronic Suppuration of the Lung, Arch. Surg. **10**: 392 (Jan.) 1925.
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24. Zaaijer and Suermondt: Personal communication to the authors, July 31, 1930.

POSTOPERATIVE PULMONARY HYPOVENTILATION *

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During the past decade, discussions of postoperative pulmonary complications have concerned themselves for the most part with pathologic processes within the lung itself. As a result of this, surgeons have been confronted with a rapidly changing nomenclature in relation to the pulmonary condition which so frequently follows abdominal operations and which later either disappears or progresses into a classic postoperative pneumonia. Hypostatic congestion, multiple embolic phenomena and pneumonitis are familiar conditions. More recently attention has been focused on the thick, viscid mucus, the bronchial tree, and atelectasis. After it was established that occlusion of a main bronchus caused massive or lobar collapse, the papers of Elwyn,[1] Mastics, Spittler and McNamee,[2] Lee and Tucker [3] and others began to appear in which were described a more diffuse process, a lobular atelectasis, presumably caused by mucous occlusion of smaller bronchi. Practically every writer on this subject has emphasized the sequence of events as follows: excessive and thickened bronchial secretion, inadequate bronchial drainage, the inhibition of the cough reflex, air absorption, and apneumatosis. To complete this conception, a nonfunctioning pulmonary tissue was finally provided which could progress into pneumonia if infection should be present.[4]

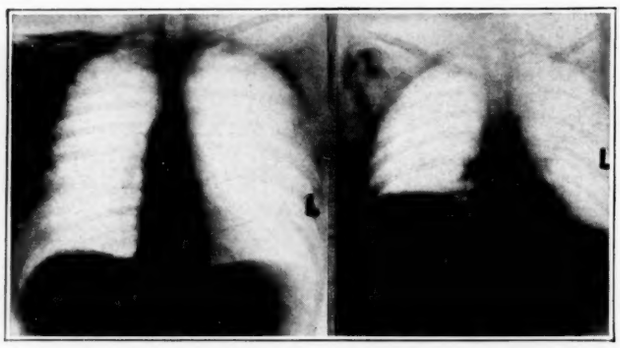

Fig. 1 (Mrs. E. S.).—Bedside roentgenograms made before and twenty-four hours after cholecystectomy. Uniform distance, bed position and exposure. Examination made at full inspiration. Elevated position of diaphragm and diminished thoracic volume are evident. Note increased density of hilus shadows and intensification of lung markings which make interpretation of postoperative roentgenograms difficult. Value of preoperative examination for comparison is demonstrated.

Recently, however, Van Allen [5] has shown that occlusion of anything less than a lobe bronchus does not result in atelectasis of that portion of the pulmonary tissue. In other words, lobular atelectasis cannot be caused by bronchial occlusion alone. This work suggests that one look outside of the bronchial tree and, perhaps, outside the thorax itself for the primary changes which deliver the postoperative abdominal case into a group in which the potentialities of pneumonia are great.

I propose in this paper to discuss variations from the normal anatomic and physiologic conditions below the diaphragm which occur after laparotomy and their effect on the position and activity of the diaphragm. I will present evidence which, I believe, indicates that pulmonary hypoventilation exists for a variable period of time after operation. The causative factors for hypoventilation and the extent to which it exists after operation have not been given the attention they merit because the clinician has focused his attention on the lesion above the diaphragm and has neglected the relationship of cause and effect.

Following abdominal operations, many patients complain of a "heavy feeling" or sense of oppression about the lower part of the thorax, often of dyspnea, or of an inability to "take a comfortable breath." Frequently breathing becomes predominantly upper thoracic in type. The exact length of time over which these complaints are made varies. The extent of the respiratory excursions during forced breathing is little more than that required for quiet breathing. Last year, in a routine study of the chests of patients before and after upper abdominal operations, Muller, Pendergrass and I [6] found a 75 per cent diminution of chest expansion after operation. The thoracic circumference became greater after operation. The measurements of the thoracic circumference during both phases of respiration after operation corresponded closely to those at fullest inspiration before operation. On auscultation diminished breath sounds, often râles, and, occasionally, tubular breathing were heard posteriorly over the bases. In some patients, varying degrees of cyanosis were present. These observations indicate that free, normal respiratory activity is interfered with after the abdomen has been opened.

Fig. 2 (Mrs. E. S.).—Bedside lateral roentgenograms made before and twenty-four hours after cholecystectomy. Note extreme elevation of diaphragm. The postoperative clinical course of this patient was uneventful.

A surprising difference was noted in roentgenograms taken in the same position, in the same phase of respiration, and with the same exposure, before and after abdominal operations. The superior-inferior diameter of the thorax was greatly diminished in the postoperative films because of a marked elevation of the diaphragm. Diaphragmatic excursions, as observed under the fluoroscope, were found to be reduced from 33 to 50 per cent after operation. In the postoperative roent-

* From Surgical Service B, University of Pennsylvania Hospital, and the Laboratory of Research Surgery, University of Pennsylvania.

* Read before the Section on Surgery, General and Abdominal, at the Eighty-First Annual Session of the American Medical Association, Detroit, June 25, 1930.

1. Elwyn, Herman: Postoperative Pneumonia, J. A. M. A. **79:** 2154-2158 (Dec. 23) 1922.
2. Mastics, E. A.; Spittler, F. H., and McNamee, E. P.: Postoperative Pulmonary Atelectasis, Arch. Surg. **15:** 155-197 (Aug.) 1927.
3. Lee, W. E., and Tucker, Gabriel: Postoperative Pulmonary Atelectasis, Atlantic M. J. **31:** 284-293 (Feb.) 1928.
4. Coryllos, P. N.: Postoperative Apneumatosis and Postoperative Pneumonia, J. A. M. A. **93:** 98-99 (July 13) 1929.
5. Van Allen, C. M.: Obstructive Pulmonary Atelectasis: Certain Considerations Relative to Pathogenesis and Management, read before the American Association for Thoracic Surgery, May 14, 1930; to be published in the Archives of Surgery.
6. Muller, G. P.; Overholt, R. H., and Pendergrass, E. P.: Postoperative Pulmonary Hypoventilation, Arch. Surg. **19:** 1322-1341 (Dec., part 2) 1929.

genograms of 75 per cent of the patients who showed no clinical evidence of a pulmonary complication, there was present an increased density of the trunk shadows which produced a triangular area of density in the lower lobes (figs. 1, 2 and 3). Examination of the routine postoperative roentgenogram disclosed a condition similar to that previously called by our roentgenologists areas of pneumonitis, bronchopneumonia or lobular atelectasis. Recently, Patey[7] and Brunn[8] have confirmed our observations in the postoperative patient.

The study was extended to include patients before and after lower abdominal operations. In each instance, regardless of the type of anesthetic used, an elevation of the diaphragm is found (fig. 4). There is a retraction of the lower lobe of the lung and a shift in the position of the lower bronchi. The heart is lifted, its horizontal diameter is increased, and it assumes a bulging, squat position. Lateral roentgenograms have been made to show the position and contour of the posterior portions of the diaphragm (fig. 5). By superimposing tracings from the preoperative and postoperative roentgenograms, it is possible to obtain a good comparison of the alteration in the thoracic cage, heart and diaphragm (figs. 3 and 6).

This roentgenologic evidence supplies ample proof that a marked reduction in thoracic volume occurs

Fig. 3.—*A*, superimposed tracings of roentgenograms shown in figure 1. *B*, superimposed tracings of roentgenograms shown in figure 2. The broken lines indicate outline of thorax in roentgenogram made twenty-four hours after upper abdominal operation. Note position of diaphragm and heart in both the anteroposterior and the lateral views.

after an abdominal operation. Anything approaching physiologic aeration of a greater portion of the lower lobes during inspiration is impossible because of the position of the diaphragm and its diminished excursion.

Several explanations for the altered position and restricted movement of the diaphragm are available. It is well known that distention of the abdominal viscera, splinting of the abdominal musculature because of pain, and surgical dressings are all factors. The disturbance of the normal pressure relationships in the immediate subdiaphragmatic region that occurs after opening the air-tight abdominal cavity must also be considered. The intraperitoneal pressure in the upper abdomen is subatmospheric.[9] I have demonstrated in animals an upward shift of the diaphragm by changing the intraperitoneal pressure from a subatmospheric, or negative, pressure to a positive pressure.[10] This alteration in pressure also diminishes the diaphragmatic excursions. The change in pressure was produced by two methods, either by the injection of small quantities of air intraperitoneally or by laparotomy (fig. 7). It is beyond the scope of this paper to discuss the factors above the diaphragm which might also play a rôle in this marked diaphragmatic displacement following laparotomy. From our observations there would seem to be a definite mechanical disturbance to respiration as a consequence of the admission of air into the peritoneal cavity.

A study of the vital capacity in 218 patients was made before and after the performance of abdominal operations. An ordinary clinical spirometer was used and the highest of three trials recorded. Records of patients who did not cooperate were discarded. Following operations on the upper abdomen, the vital capacity was reduced 64 per cent of the preoperative or normal value. Following lower abdominal operations, the average vital capacity was reduced 40 per cent of the normal value. In 106 of these patients, studies of vital capacity were made throughout the period of convalescence (fig. 9). The observations are in accord with those of Churchill and McNeil,[11] Head,[12] and Powers,[13] who found similar reductions in the vital capacity of patients after abdominal operations.

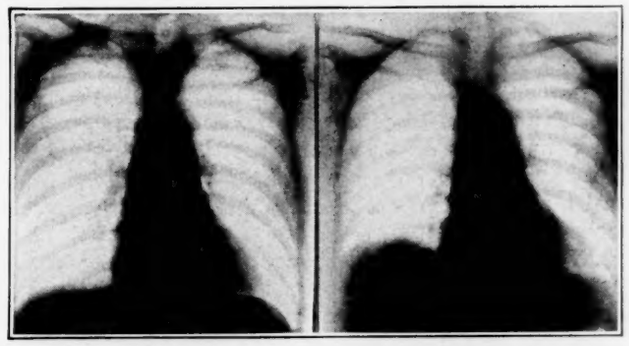

Fig. 4 (Mr. W. C.).—Bedside roentgenograms made before and twenty-four hours after a low abdominal incision was made for releasing peritoneal adhesions. Uniform position of patient, uniform distance and exposure. Examinations made at full inspiration. Note position of diaphragm, squat position of heart and decrease in thoracic volume.

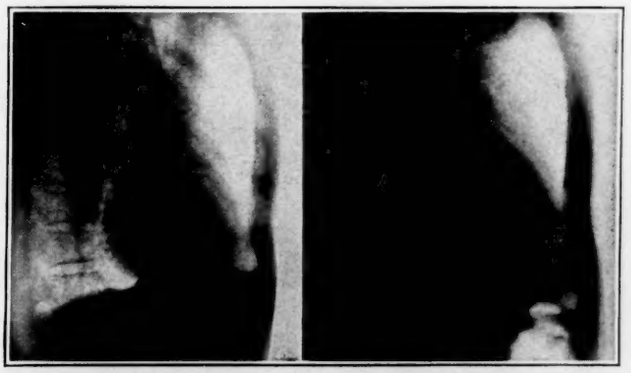

Fig. 5 (Mr. W. C.).—Lateral roentgenograms made before and twenty-four hours after a low abdominal operation. Note marked shift in position of the posterior portion of the diaphragm and obliteration of costophrenic angle posteriorly. The postoperative clinical course of this patient was uneventful.

Thoracic operations were not accompanied by such an extensive reduction of the vital capacity, which was low previous to operation. In twelve patients on whom

7. Patey, D. H.: The Effect of Abdominal Operations on the Mechanism of Respiration, Brit. J. Surg. **17**: 487-497 (Jan.) 1930.
8. Brunn, H.: Observations on Postoperative Pulmonary Atelectasis: Consideration of Some Factors in Etiology, Prevention and Treatment, read before the American Surgical Association Meeting, May 15, 1930, at Philadelphia; to be published in the Annals of Surgery.
9. Overholt, R. H.: Observations on Intraperitoneal Pressure, read before the Philadelphia Academy of Surgery in March, 1930; to be published in the Archives of Surgery.
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11. Churchill, E. D., and McNeil, Donald: The Reduction in Vital Capacity Following Operation, Surg. Gynec. Obst. **44**: 483 (April) 1927.
12. Head, J. R.: The Effect of Operation upon the Vital Capacity, Boston M. & S. J. **197**: 83 (July) 1927.
13. Powers, J. H.: Vital Capacity: Its Significance in Relation to Postoperative Pulmonary Complications, Arch. Surg. **17**: 304-323 (Aug.) 1928.

a thoracoplasty was done or a mediastinal tumor removed, the average postoperative vital capacity was 72 per cent of the preoperative value. Head also found less variation in the vital capacity after thoracic operations.

All of the clinical and roentgenologic evidence in regard to the degree of postoperative pulmonary hypoventilation followed so closely the evaluation of the vital capacity that this test was used to determine the importance of various factors which influence respiratory action in the postoperative abdominal case. The relation of the position of the patient, the surgical dressing, the presence of pain, and the effect of the laparotomy itself without the pain factor were investigated.

The vital capacity of a large number of patients was taken in the semi-Fowler and horizontal positions. The bed position influenced the breathing little. The vital capacity was decreased less than 4 per cent in the horizontal position.

Determinations of vital capacity were made in seventy-nine patients before and after application of a muslin, many-tailed abdominal binder, and the results are given in the accompanying table. Only a slight

Vital Capacity Averages: Position and Dressing

	Number of Patients	Bed Position: Semi-Fowler, Cc.	Bed Position: Flat, Cc.
Preoperative	58	2,759	2,695
Postoperative	43	1,786	1,718
		Abdominal Binder: Before Application	Abdominal Binder: After Application
Preoperative	54	2,740	2,661
Postoperative	25	1,798	1,520

reduction was noted in the preoperative group following the application of the binder. However, approximately a 15 per cent reduction in the vital capacity could be attributed to a tightly fitting abdominal binder, applied postoperatively. When an ordinary

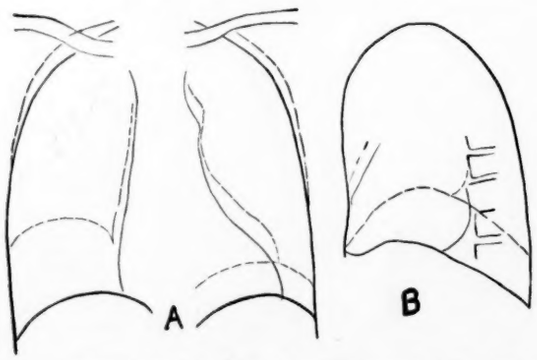

Fig. 6.—*A*, superimposed tracings of roentgenograms shown in figure 4. *B*, superimposed tracings of roentgenograms shown in figure 5. Dotted lines indicate outline of thorax in roentgenogram made twenty-four hours after a lower abdominal operation. Altered positions of diaphragm and heart are clearly shown. Note change in thoracic volume.

surgical dressing of gauze and adhesive tape was applied, very little change in the vital capacity was noted.

The effect of the partial abolition of pain by the administration of one-sixth grain (11 mg.) of morphine sulphate hypodermically was studied in thirty-five patients. The vital capacity was definitely greater thirty minutes after the administration of the drug (fig. 10). In ten patients the drug was administered both before and after operation and repeated determinations of the vital capacity were made and compared. A slight depression was noted in the preoperative patients, whereas postoperatively a definite improvement was noted.

The effect of pain in limiting respiration after operation was also investigated by studying patients still

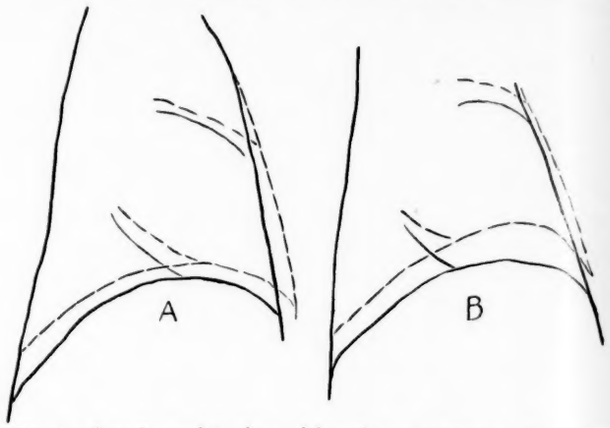

Fig. 7.—Superimposed tracings of lateral roentgenograms of two dogs anesthetized by a soluble barbital compound. All exposures made at full inspiration. *A*, dog 897: solid line indicates outline of thorax before 50 cc. of air per kilogram was injected intraperitoneally; dotted line indicates position after intraperitoneal air injection. *B*, dog 901: tracings made before and after laparotomy. Note high position of diaphragm and elevation of heart and costal arch in both animals.

under the influence of spinal anesthesia. Vital capacity determinations were made: (1) with the patient on the operating table before the administration of the spinal anesthetic; (2) ten minutes after induction of spinal anesthesia by administration of from 100 to 200 mg. of procaine hydrobromide; (3) after the abdominal operation but before the return of cutaneous sensation, and (4) six hours later. The first reading served as a control while the second disclosed any alteration in vital capacity due to the spinal anesthesia itself. The third reading indicated the mechanical changes in respiratory activity due to the opening of the abdomen alone without the inhibiting effect of pain. The last reading taken after the disappearance of anesthesia indicated the extent of postoperative ventilation with all factors, including pain, being present. Records of noncooperative patients and those of patients with low blood pressure or intercostal paralysis were excluded. Satisfactory determinations were made in forty-one patients.

Five patients on whom lower extremity or perineal operations were performed were used as controls. Vital capacity determinations were carried out in this group in a manner similar to that used in the abdominal group. In addition, a vital capacity reading was taken thirty minutes after the induction of anesthesia at the time the intercostal muscles were paralyzed. A fall in the vital capacity was noted while the intercostal muscles were not functioning, but a return to the normal level took place after the operation and after there had been a restoration of thoracic movements.

In the abdominal group a slight reduction in the vital capacity followed spinal anesthesia alone. The operation itself caused a marked fall in the vital capacity, even though the operation merely consisted of an exploratory laparotomy. After the disappearance of the effects of spinal anesthesia, a still greater reduction was noted (fig. 11).

From this study it would seem probable that a mechanical interference with respiration occurs at the

time the abdomen is opened. This is confirmed by the experimental evidence, which demonstrates the fact that an elevation of intraperitoneal pressure, either by laparotomy or by injection of air, will cause an elevation of the diaphragm with restriction of diaphragmatic activity. Since the first measurement of vital capacity after operation was made at a time when the pain factor was absent, it seems justifiable to conclude that not all the faulty breathing after abdominal operations is due to pain. That pain is also an important factor cannot be denied. The further reduction in the vital capacity after the disappearance of anesthesia can be attributed to the splinting of the abdominal musculature because of pain.

All the evidence accumulated in our study of the postoperative pulmonary status of patients tends to show that the greatest single difference between the chest of the preoperative patient and the chest of the postoperative patient is a marked reduction in pulmonary ventilation. With the diaphragm elevated, the lower pulmonary lobes must necessarily retract and the contour and size of the bronchi suffer alteration. Faulty descent of the diaphragm prevents a proper interchange of air in the alveoli of the lower lobes and the movement of the air in the bronchioles is retarded if not actually stopped.

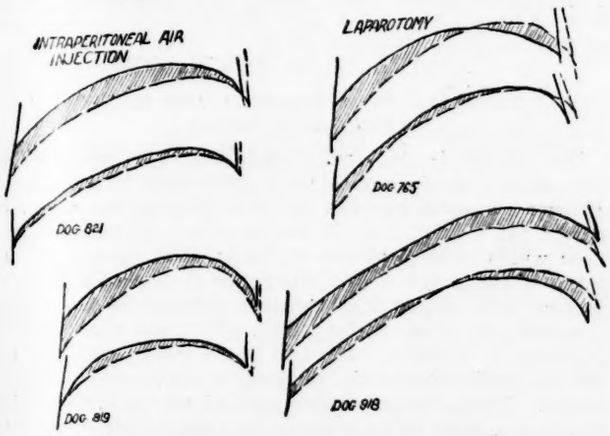

Fig. 8.—Tracings from fluoroscopic observations of diaphragmatic excursions in animals before and after a pneumoperitoneum had been produced either by intraperitoneal air injection or by laparotomy. The lower tracing of each animal indicates the extent of the excursion after the induction of a pneumoperitoneum. Note diminution of excursion.

Whether or not the poorly ventilated basal portions of the lung go on to complete atelectasis depends on the extent of the diaphragmatic elevation, the degree and duration of the hypoventilation, and other factors which might cause the complete closure of many of the smaller bronchi. Whether or not the postoperative patient with a poorly ventilated lung develops pneumonia depends on the presence of an infectious agent. However, since an extreme degree of hypoventilation can be demonstrated after every abdominal operation, it seems logical that primary consideration should be given to this factor, in any consideration of postoperative pulmonary complications. The administration of carbon dioxide, as suggested by Henderson and Haggard,[14] is the most effective method of increasing pulmonary ventilation. Its routine postoperative use has been proved valuable by Scott and Cutler,[15] Sise, Mason and Bogan,[16] Dzialoszynski[17] and others. In cases in which symptoms of hypoventilation are very evident, treatments with carbon dioxide are given at regular intervals for a period of three or four days postoperatively. Frequent turning and deep breathing exercises should be resorted to early in every case.

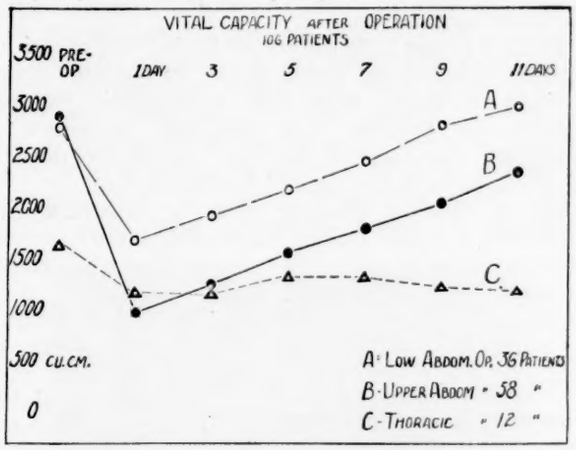

Fig. 9.—Average vital capacity measurements before operation and at two-day intervals after operation. Note extent of fall in vital capacity in the upper abdominal group. The gradual return toward the preoperative value is evident as the period of convalescence lengthens. The thoracic group had a low average preoperative vital capacity and this value was little influenced by operation.

My associates and I have been extremely interested in a method of restoring the intraperitoneal pressure to its normal subatmospheric status in order to prevent the elevation of the diaphragm and the consequent pulmonary involvement. Our clinical experience is too limited to warrant publishing results at this time. However, we wish to suggest a postoperative procedure that we are trying in an effort to overcome or shorten the duration of the mechanical disturbance of diaphragmatic activity following abdominal operations. With the abdomen open, the diaphragm is pulled farther within the thorax by the negative intrapleural pressure because other resisting forces have been removed. We attempt to force the diaphragm to a lower position and to reexpand basal portions of the lung as the abdomen is sealed. This is done by having the anesthetist give carbon dioxide inhalations under positive pressure as the abdomen is closed. Air in the abdominal cavity is displaced by physiologic solution of sodium chloride,

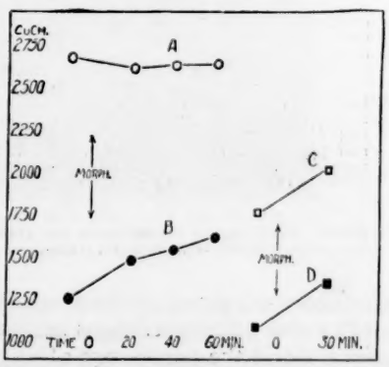

Fig. 10.—Effect of the administration of morphine on vital capacity. Group A represents the average vital capacity estimation in ten preoperative patients. Morphine slightly lowered the vital capacity. In the same patients after an abdominal operation, group B, the vital capacity was improved by morphine administration. Group C shows the average effect of morphine given to twenty-three patients after a low abdominal operation. Group D represents the effect in twelve patients after an upper abdominal operation.

14. Henderson, Yandell; Haggard, H. W., and Coburn, R. C.: The Therapeutic Use of Carbon Dioxide After Anesthesia and Operation, J. A. M. A. **74**: 783-786 (March 20) 1920.
15. Scott, W. J. M., and Cutler, E. C.: Postoperative Massive Atelectasis: The Effect of Hyperventilation with Carbon Dioxide, J. A. M. A. **90**: 1759-1763 (June 2) 1928.
16. Sise, L. F.; Mason, R. L., and Bogan, I. K.: Prophylaxis of Postoperative Pneumonia: Preliminary Report of Some Experiments After Upper Abdominal Operations, Current Researches in Anesthesia and Analgesia **7**: 187-190 (May-June) 1928.
17. Dzialoszynski, A.: Apparatur zur Kohlensaureinhalation und bildliche Darstellung der Kohlensaurenwendung am kranken, Deutsche Ztschr. f. Chir. **205**: 22, 1927.

and this is removed by suction when the peritoneum is finally closed. Absorption of air in the peritoneal cavity is slow, as roentgenograms taken from a week to ten days after laparotomy often show a film of air beneath the diaphragm. Water, however, gravitates to dependent portions of the abdominal cavity and, with sagging of the walls, tends to decrease the pressure in the subdiaphragmatic region.

Since it makes little difference in the vital capacity of patients whether the bed is flat or in the semi-Fowler position, it would seem wise to maintain the most comfortable position. If bronchial secretions are abundant, the foot of the bed should be raised at intervals to promote natural bronchial drainage. The ordinary surgical dressing restricts breathing little. However, a tightly fitting, many-tailed binder decreases the vital capacity and should not be used when there is pulmonary embarrassment.

The free postoperative use of morphine should be encouraged. Improvement in the vital capacity and an increase in freedom of respiratory effort were noticeable as the abdominal pain diminished. This is contrary to the belief of Jackson,[18] Bowen [19] and others, who, because of their fear of the loss of the cough reflex, warn against the use of morphine. We feel that the increased ventilation and increased ability to clear the throat which result from the decrease in pain far outweigh any objection to the postoperative use of morphine. Davis [20] found a distinct improvement in the arterial oxygen saturation in pneumonia cases when morphine was used to control pleuritic pains that were limiting respiratory excursions.

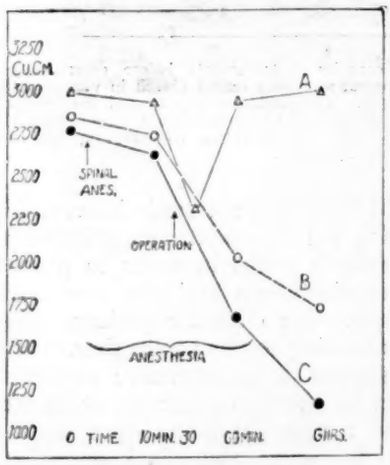

Fig. 11.—Effect of spinal anesthesia and operation on vital capacity. Group A, five patients in whom operation was on lower extremity. Group B, average vital capacity values in twenty-one patients on whom low abdominal operations were performed. Group C shows vital capacity values in twenty patients on whom upper abdominal operations were performed. Readings taken (1) before anesthesia; (2) after spinal anesthesia; (3) after operation while anesthesia is still present; (4) after operation after disappearance of anesthesia. Note marked fall in vital capacity in both abdominal groups, B and C, after operation, while anesthesia was still present and when pain was not a factor. Note further reduction in last reading when abdominal pain was present.

The routine use of the Roth-Barach oxygen chamber after abdominal operations has proved unnecessary. An increase in the percentage of oxygen in the inspired air decreases the amplitude of the respiratory excursions and therefore induces shallow breathing. We are at present carrying out a study of oxygen saturation of arterial and venous blood of patients before and after abdominal operations. The results so far obtained indicate that a fairly large proportion of these patients have a decrease in the arterial oxygen saturation. In patients that suffer from anoxemia, as evidenced by cyanosis, dyspnea and an increased rate of respiration that cannot be relieved by increasing pulmonary ventilation, oxygen therapy after operation is of distinct value. We use the oxygen chamber as routine procedure in all cases in which the condition has proceeded beyond one of hypoventilation; i. e., in cases of a bronchopneumonia.

18. Jackson, Chevalier: Postulates on the Cough Reflex in Some of Its Medical and Surgical Phases, Therap. Gaz. **44**: 609-610 (Sept.) 1920.
19. Bowen, D. R.: Acute Massive Collapse (Atelectasis) of the Lung, Am. J. Roentgenol. **21**: 101-141 (Feb.) 1929.
20. Davis, J. S., Jr.: Effect of Morphine on Respiration in Pneumonia, J. Clin. Investigation **6**: 187-202 (Oct.) 1928.

SUMMARY

Evidence has been presented that a marked degree of pulmonary hypoventilation exists for a variable period of time after abdominal operations. Thoracic volume is decreased and expansion of the lower lobes is prevented by a high position of the diaphragm. A restriction of the diaphragmatic excursions contributes to the faulty aeration of basal portions of the lung. The opening of the abdominal cavity and the entrance of air permit the negative intrapleural pressure to draw the diaphragm higher in the thorax. Besides this mechanical factor, a reflex splinting of the abdominal musculature because of pain is also important in effecting the altered status of diaphragmatic activity after operation.

Rational postoperative treatment should include all measures that tend to overcome the faulty ventilation of the pulmonary tissue. Pain should be controlled by the adequate administration of morphine. A method of abdominal closure that will partially overcome pressure disturbances below the diaphragm is suggested.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. ALEXANDER AND BUCKINGHAM AND DR. OVERHOLT

DR. GEORGE P. MULLER, Philadelphia: In my cases of lung abscess, the duration of the disorder made little difference. Patients recovered who had had this condition for a year or a year and a half. Patients died in whom drainage had been done within three months of the onset. The virulence of the infection, the amount of partial gangrene of the lung that occurs, together with the extent in the more chronic case of the bronchiectasis and the age of the patient, will have a more important influence on mortality. It ought to be remembered that any chronic cough with putrid expectoration is not necessarily tuberculous. In my series, 42 per cent of the patients had had hemoptysis, many of them having been treated for a long time, even in sanatoriums, for tuberculosis. Also, proper emphasis was placed on the great value of recognizing a chronic suppurative sinusitis in these patients. As Graham said, in a number of instances he cured children with a suppurative disease of the lung simply by having their sinuses attended to. Drs. Alexander and Buckingham brought out the point directly that in suppurative disease of the lung one must proceed slowly and cautiously from the minor to the major procedure. Many of these patients are cured by rest and postural drainage, helped by an occasional bronchoscopy. Some are helped by phrenicectomy. Some have to come to external drainage, and those will be largely the patients with a cavity which does not drain into the bronchus, because, after all, what difference does it make whether a patient's lung drains into a bronchial tube or through an external opening, provided the cavity can be collapsed and the patient gets well? If there is a more diffuse process in the lung, involving an entire lobe, with a bronchiectasis, it is certain that simple drainage is ineffectual, and one then is forced to do a cauterization or lobectomy by exteriorization. I also think they made a good point in bringing out the fact that the modern treatment of a suppurative lung for drainage requires the removal of, say, three ribs. The simple removal of a rib and the cutting of a small hole and the putting in of drainage is not satisfactory.

DR. CARL R. STEINKE, Akron, Ohio: I want to emphasize the idea of not using artificial pneumothorax in lung abscesses. About the only location in which it could be properly used would be in the hilus type. Much safer would be the temporary interruption of the phrenic nerve. When I have wanted to

compress the apex permanently, I have been using the method of turning up the periosteum of the second to the fourth ribs after resecting the ribs. It is well known that, in the production of pulmonary complications, hypoventilation or obstruction is nearly always essential. If the pneumococcus is present, pneumonia will develop. If mixed infection of staphylococci or anaerobes or sometimes streptococci are present, abscess or gangrene is apt to develop. In bronchiectasis, it is known that a good many cases are congenital, and the condition should be seen earlier if one expects to obtain good results surgically. The old chronic types are serious and require several operations, and sometimes operations are not beneficial. The stage operation in these conditions is essential. I have made it a practice, while sewing up the abdomen, to use 10 per cent carbon dioxide and 90 per cent oxygen for inhalation to procure increased ventilation. Since using this method I have reduced the number of cases with postoperative pulmonary complications. The lowered vital capacity is probably one of the main factors in the production of these conditions. Pulmonary complications following upper and lower abdominal operations are in about the same proportion as the difference in reduction of vital capacity in the upper and lower abdominal operations. In doing operations on the phrenic nerve, I have devised a stripper to use in certain cases. The open stripper is used when the nerve is crushed and I wish to tear off the accessory. The closed one can be used in phrenic exeresis. In doing operations on the chest with the patient on the side, I have devised an arm rest for taking care of the arm and forearm. The position of this rest can be changed to take care of the position of the patient on the table. The under rest is for the underarm when the physician wants it to come in front of the patient. Straps or towels should be placed around the arm to fix it in position.

THE USE OF MECHANICAL MEASURES IN THE TREATMENT OF OBSTINATE EDEMA *

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AND
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The treatment of severe and refractory edema of the lower extremities has occupied the attention of physicians for many centuries. The celebrated Roman philosopher Celsus,[1] of the first century A. D., in a chapter on "De Hydropicis," called attention to the beneficial effects of a low fluid intake as well as to the increased elimination of fluid by excessive sweating; but in addition to these measures it is of considerable interest to find the following recommendation given by him for the treatment of dropsy: "Above all an incision ought to be made, of almost four fingerbreadths, on the inner side [of the leg], from which much fluid may drain for several days." Although even today this original recommendation of Celsus is occasionally resorted to, more appropriate measures are now available.

Great progress has been made during the last fifty years in the direction of a better understanding of cardiac and renal disease. The realization of the importance and of the rational use of digitalis in patients with early congestive failure, the introduction of the caffeine diuretics, and more recently of merbaphen (novasurol) and mersalyl (salyrgan), have proved very efficacious in the prevention and control of anasarca. However, in spite of these measures, a case of extreme edema is occasionally encountered that resists all efforts at medical control. It is this type of case that we shall consider here, calling attention to the numerous procedures that have been employed for combating such a distressing situation, in particular one which, although introduced more than fifty years ago by Reginald Southey,[2] has largely been forgotten. We believe that this measure proposed by Southey has a definite place in the treatment of patients with obstinate edema.

By the mechanical removal of considerable quantities of excessive edema fluid, one may hope to accomplish a threefold purpose: in the first place, by reducing the size of the distended parts, the patient is made more comfortable; secondly, the already overtaxed and failing circulatory system is relieved of an additional burden; and, finally, the partial removal of what has been called by Galli [3] the "peripheral barrier" to the circulation favors a more adequate resorption of the remaining fluid by subcutaneous veins and lymphatics when these have been embarrassed by the pressure of the edema fluid.

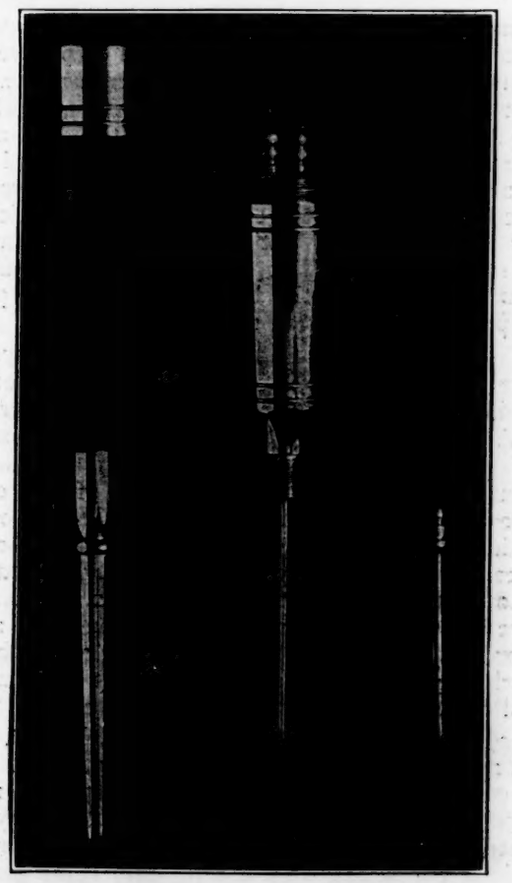

Fig. 1.—Southey's trocar and cannulas, actual size. In the handle of the trocar is a compartment in which four cannulas are carried.

Of the local measures that have been employed in the treatment of edema in general, we shall discuss briefly the ones that to us seem of greater interest. They fall into three groups:

1. In relatively slight edemas, such mechanical procedures as gentle massage and elevation of the part lessen the tension, make the patient more comfortable,

* From the Cardiac Clinic of the Massachusetts General Hospital.
* Read before the Section on Pharmacology and Therapeutics at the Eighty-First Annual Session of the American Medical Association, Detroit, June 25, 1930.

1. Celsus, Aurelius: De Re Medica, book III, chapter XXI.

2. Southey Reginald: Chronic Parenchymatous Nephritis of the Right Kidney, Left Kidney Small and Atrophied, Old Scrofulous Pyelitis, Tr. Clin. Soc. London **10**: 152, 1877; Traitement de l'anasarque général par un drainage capillaire, Compt. Rend. Assoc. franç. pour l'avance d. sc. **6**: 856, 1877.

3. Galli, Giovanni: Un nouveau trocart pour l'évacuation de l'oedème cardiaque, Arch. de mal. du cœur. **16**: 591, 1923.

and promote the absorption of the excess fluid. These measures, in addition to medical treatment, are usually sufficient to control the situation.

2. The application of hypertonic solutions, usually a dressing containing a solution of sodium chloride in glycerin, has been employed and recommended by Carnot,[4] provided the skin is intact. Edematous legs are said to shrink several centimeters in twenty-four hours. We have not attempted this, as it has appeared impracticable to us.

3. In the presence of a large amount of fluid, several surgical measures for its evacuation are available:

(*a*) Acupuncture, in which multiple small needle pricks are made into the edematous parts, thereby permitting fluid to exude for several days, has been widely practiced during the past century, and striking relief has been noted in numerous patients following the drainage of considerable amounts of fluid. However, as has been pointed out by others, all who have used this method are acquainted with the serious drawbacks attending ordinary puncture of the distended limbs. The fluid that drains away is difficult to collect and to control. The patient's skin is constantly exposed to an irritating and decomposing body fluid, which promotes infection and ulceration; erysipelas sometimes follows, may accelerate the patient's death and greatly increase the suffering of the last few days of life, while the constant wetting of the bedclothes keeps the patient damp and cold, and is an undesirable feature.

(*b*) Long, deep incisions have been employed by others and by this method as much as 30 liters of fluid is said to have been obtained in twenty-four hours.[5] In 1927, Sépet[6] used this procedure on fourteen patients and reported excellent results in all cases with the evacuation of much fluid, regression of the edema, increased urination and improved cardiac action. It would seem, however, that except in rare cases this procedure is undesirable and that it may be attended by some danger to the patient. Rarely, in the past, even more heroic measures have been attempted, such as that recorded by Finch[7] in 1823 in a "case of anasarca in which amputation was successfully employed, and the fluid discharged by it."

(*c*) Finally, what appears to us the simplest, safest and most desirable method of treating obstinate edema of considerable degree is the one originally recommended by Southey. Although it is frequently mentioned in textbooks and occasionally in the literature, we have reason to believe that its value is not generally appreciated, and certainly not in America.

In 1877, Reginald Southey, a physician of St. Bartholomew's Hospital in London, realizing the limitations and dangers of the procedures previously employed, perfected a method of subcutaneous drainage by means of small capillary tubes which are shown in figure 1 and which bear his name. The apparatus is simple in design and consists of a small metal trocar and cannula, the latter containing several lateral perforations permitting a free flow of fluid. In the handle of the trocar is a compartment in which additional cannulas are carried. The use of the instrument is not difficult. The skin at the sites selected for insertion, usually the outer and inner aspects of the lower parts of the legs, the dorsum of the feet, or the scrotum, is cleansed aseptically, a wheal is made with procaine hydrochloride, and a small amount of sterile ointment is applied to prevent local irritation. The trocar and cannula are inserted deeply into the swollen part; the cuff of the cannula is held firmly with a clamp while the trocar is withdrawn and a small rubber tube attached.[8] Fluid wells up immediately and continues to flow in steady drops from the cannula until the rubber tube is in place; this, in turn, is led off to a suitable receptacle placed beneath the bed for the collection of the fluid. As many tubes may be used as seem desirable; we have found that two in each leg are usually adequate; they are left in place for from one to several days and cause surprisingly little discomfort to the patient. There is ordinarily no leakage about the cannula; the skin and dressing remain dry. Since the flow is constantly away from the site of insertion, the chance of infection is greatly lessened, and with an ordinary amount of care we believe that it is relatively slight. Following the removal of the tubes, a moderate amount of fluid may continue to drain for a few days, but the wounds heal without difficulty. Curshmann[9] has designed a larger trocar and cannula to be used in the same fashion as Southey's apparatus, but it appears that in the majority of cases, certainly, the latter is adequate.

TABLE 1.—*Cases in Which Southey's Tubes Were Used*

Patient and Age	Diagnosis	Duration of Edema	Result of Withdrawal of Fluid in Reducing Size of Legs or Scrotum	Amount of Fluid Withdrawn, Cc.	Time During Which Fluid Was Removed	Condition of Patient
1. M. C. 63	Hypertensive heart disease	6 mo.	+++	16,000	2 days	Died of bronchopneumonia one month later
2. F. J. 48	Hypertensive and rheumatic heart disease	3 mo.	+++	9,000 3,000	3½ days 1 day	Died of bronchopneumonia one month later
3. E. C. 49	Hypertensive and rheumatic heart disease	12 mo.	++	2,000 (scrotum)	1 day	Living six months later
4. M. L. 44	Hypertensive heart disease	3 mo.	++	3,000	24 hours	Left hospital against advice not traced
5. M. W. 29	Rheumatic heart disease	30 mo.	++	3,000 1,900	24 hours 2 days	Died of heart failure two weeks later
6. R. C. 52	Hypertensive heart disease	4 mo.	+	1,600	2½ days	Died of bronchopneumonia two weeks later
7. N. G. 56	Hypertensive and coronary heart disease	2 mo.	0	500	? hours	Died of congestive heart failure two weeks later
8. H. A. 77	Abdominal carcinomatosis	2 mo.	0	500	3 hours	Died four hours later

During a recent visit of one of us to the clinic of Sir Thomas Lewis in London our attention was directed, by observation of a certain case, to the excellent results that occasionally may be obtained by the employment of this procedure; 6 liters of edema fluid were removed from the legs by Southey's tubes in three days with great symptomatic relief and objective evidence of improvement. The patient was a young woman with

4. Carnot, P.: Le traitment locale des oedèmes, Paris méd. **11**: 52, 1913.
5. Debio, cited by Carnot (footnote 4).
6. Sépet, M. P.: Saignée séreuse par incision large des téguments dans les oedèmes irréductibles, Marseille méd. **2**: 693 (Nov. 25) 1927.
7. Finch, F.: London Medical Repository **19**: 205, 1823.
8. Southey suggested first passing the trocar and cannula through a small slit near the end of the rubber tube. After insertion into the subcutaneous tissue, the rubber tube is readily slipped over the cuff of the cannula.
9. Curshmann, H.: Zur mechanischen Behandlung der Hautwassersucht, Therap. Monatschr. **8**: 95, 1894.

severe rheumatic heart disease, normal rhythm, and congestive failure with extensive anasarca.

We have encountered in the course of the past ten months in Boston eight cases of extensive edema, several of which failed to respond adequately to medical treatment, and in these cases we have employed Southey's tubes in an attempt to relieve the anasarca.[10] In seven of the cases the edema was the result of congestive heart failure, and in one case it was secondary to an extensive abdominal carcinomatosis. The results are shown in table 1.

REPORT OF CASES

CASE 1.—M. C. (private patient), a man, aged 63, a foreman seen in consultation, had had cardiac asthma for the previous four years; he had been much worse during the last year. For six months he had had edema of the legs which responded to digitalis and merbaphen, but for the past two and one-half months the edema had been reaccumulating, involving the lower extremities, the genitalia and the abdominal wall. Urination had been difficult because of an enlarged prostate and enormous swelling of the scrotum and penis, and frequent catheterization had to be resorted to. On physical examination his heart was found to be very large, auricular fibrillation was present, but the rate was well controlled by digitalis. The blood pressure was 175 mm. of mercury systolic and 100 mm. diastolic. Massive edema of the lower extremities and of the genitalia was present. A diagnosis of hypertensive heart disease with auricular fibrillation and congestive failure was made. Southey's tubes were inserted, two in the dorsum of the right foot, two in the left foot; later, one of those in the right foot was transferred to the scrotum. They were allowed to remain in place two days, and at the end of that time 16 liters of fluid had been collected; of this amount 1 liter had been removed from the scrotum. The patient was greatly relieved and was able to lie flat in bed with considerable comfort, a position which had been impossible before this time. During the course of the next two weeks the edema slowly reappeared; the tubes were again inserted and in twelve hours 2 liters of fluid was drained from the legs; at the end of this time the patient fell from a chair and the tubes were pulled out; the legs were quite soft and therefore the tubes were not replaced. The patient lived a month longer and up to the time of his death there had been very little reaccumulation of the fluid. The relief afforded in this case by the mechanical removal of the fluid (36 pounds, or 16.3 Kg.) was the most striking in our series and almost certainly postponed the fatal termination by several weeks.

CASE 2.—F. J. (Massachusetts General Hospital), an American housewife, aged 48, who was known to have had hypertension and rheumatic heart disease for sixteen years, entered the hospital because of edema, dyspnea and attacks of precordial pain, anginal in character, for the preceding two months. She also had mild diabetes, which was easily controlled by diet. On examination she showed evidence of rheumatic and hypertensive heart disease with mitral stenosis and regurgitation and congestive failure with normal rhythm. During the course of several weeks of bed rest, digitalization and administration of diuretics she improved considerably, but slight edema persisted. She was permitted to go to a convalescent home, where in spite of daily digitalis and bed care the edema gradually returned, so that in a few weeks she returned to the hospital with marked congestive failure, massive edema of the legs, edema of the abdominal wall and slight ascites. After a week's trial with diuretics there was no subsidence of the edema. Southey's tubes were inserted and in three and one-half days 9 liters of fluid was withdrawn, which resulted in considerable improvement, subjectively and objectively, with the loss of most of the edema of the body wall and legs. It is of some interest that during the first twenty-four hours there was no change in the size of the legs, but the edema of the body wall decreased considerably. After three and one-half days the tubes were removed; with mersalyl intravenously the anasarca was partially controlled, but it slowly returned during the next three weeks. Although the edema was of only moderate degree, the patient asked that the tubes be reinserted because of the relief obtained from them in the first instance. This was done and 3 liters of fluid was withdrawn, with considerable decrease in the size of the legs. One week later the patient died of bronchopneumonia.

CASE 3.—E. C. (private patient of Dr. L. M. Hurxthal), a man, aged 49, entered the Deaconess hospital, Boston, in June, 1928, because of dyspnea, gaseous distention and edema of the legs of about six weeks' duration. He had had rheumatic fever at 21. Physical examination revealed fluid in the chest, considerable edema of the lower legs, and abdominal distention. The heart was very large; the rhythm was absolutely irregular at a rate of about 120. At the apex was a rough systolic murmur. The blood pressure was 200 mm. of mercury systolic and 120 mm. diastolic. A diagnosis was made of hypertensive and rheumatic heart disease with auricular fibrillation and congestive failure.

Fig. 2.—Southey's tubes in use.

The patient had been overdigitalized and on withdrawal of the drug and the administration of theophylline (theocin) considerable improvement followed. He was readmitted to the hospital in November, 1928, and again in January, 1929, because of recurring and extensive edema. On each occasion the edema subsided following the administration of mersalyl. In December, 1929, he again entered the hospital with moderate edema of the lower legs, a tremendously swollen scrotum (size of a football) and ascites. After the removal of 4 liters of fluid from the abdomen, a single Southey's tube was inserted into the scrotum and at the end of twelve hours 1,200 cc. of fluid had been drained away with marked symptomatic relief to the patient. A Curshmann tube was then inserted also and 800 cc. of additional fluid was removed, so that at the end of twenty-four hours 2 liters of fluid had been collected and the size of the scrotum had receded almost to normal. The edema of the legs subsided following the use of mersalyl and theophylline. In March, 1930, the patient entered the hospital for the fourth time because of tremendous anasarca. The veins in his arms had become thrombosed as the result of numerous previous injections and the response to mersalyl administered intramuscularly was inadequate, so that an incision was made in one thigh from 3 to 4 cm. in length and down to the deep

10. One of these patients (case 3 of the table), in the practice of Dr. L. M. Hurxthal, was treated by him with the insertion of Southey's tubes. We are indebted to him for permission to include this case in our series.

fascia, from which 30 pounds (13.6 Kg.) of edema fluid drained away during the following two weeks. Although still alive, the patient is in poor condition and the anascarca is returning.

CASE 4.—M. L. (Massachusetts General Hospital), a Polish housewife, aged 44, entered the hospital because of intermittent aching precordial pain, dyspnea, and orthopnea for the preceding five months. For the past three months she had been confined to bed because of the symptoms mentioned and because of edema of the lower extremities. In spite of digitalis she became progressively worse, until at the time of entry she was orthopneic and cyanotic. The heart was very large with normal rhythm and a rate of 100. The sounds were of poor quality. The blood pressure was 150 mm. of mercury systolic and 110 mm. diastolic. There was evidence of marked congestive failure with ascites, massive pitting edema of the legs, and moderate edema of the hands and arms. The electrocardiogram showed right bundle branch block. A diagnosis of hypertensive heart disease with congestive failure was made. An abdominal paracentesis yielded 1,200 cc. of ascitic fluid. Southey's tubes were inserted, two in each leg, and 3 liters of fluid was collected in twenty-four hours, with a definite decrease in the size of the legs. The patient spoke little English, was difficult to manage, and because she repeatedly pulled out the tubes it was decided at the end of the first twenty-four hours not to replace them. The foregoing treatment was followed by the administration of ammonium chloride, mersalyl and theobromine. During her three weeks' stay in the hospital she lost 27 pounds (12.2 Kg.), largely as a result of the subsidence of edema. The patient was considerably improved, but left the hospital against advice, and we have no further information concerning her. In this case, because of her critical condition and acute discomfort on admission, it was thought best to attempt relief of the edema by mehcanical methods immediately, rather than to await the slower results to be expected from the use of diuretics; the rapid improvement was gratifying.

CASE 5.—M. W. (Massachusetts General Hospital), a housewife, aged 29, entered the hospital with rheumatic heart disease, mitral stenosis and regurgitation, and auricular fibrillation with marked congestive failure. In spite of digitalis and diuretics she had been bedridden for two and one-half years with the development of generalized edema of the extremities, chest wall and face, together with ascites. Because of the slowly increasing edema she was recommended for admission to the hospital. Digitalis and mersalyl had little effect on the anasarca. Two of Southey's tubes were inserted into each thigh and at the end of twenty-four hours 3 liters of edema fluid had been collected, and at the end of three days 5 liters had drained away and the extremities had shrunk to almost normal size, although considerable edema of the body wall remained. The tubes were removed. The edema of the legs did not reaccumulate up to the time of the patient's death from cardiac failure two weeks after the therapy outlined.

CASE 6.—R. C. (Massachusetts General Hospital), an Italian housewife, aged 52, entered the hospital with severe congestive heart failure. Five years previously she had been told that she had high blood pressure and heart disease, and because of dyspnea on exertion she was started on digitalis therapy, which had been continued to the present time. Her reserve gradually diminished, so that one year prior to entry she had to stop work because of symptoms of dyspnea and mild substernal oppression. Four months before entry edema of the ankles appeared which became progressively worse. On admission to the hospital she was dyspneic, orthopneic and slightly cyanotic. The heart was markedly enlarged in all diameters; a well marked gallop rhythm was present at a rate of 110. The blood pressure was 230 mm. of mercury systolic and 160 mm. diastolic. There was moisture at both lung bases, the abdomen was distended with fluid, and there was marked edema of the lower extremities and papilledema of both optic disks. The urine showed a slight trace of albumin. A diagnosis of hypertensive heart disease and congestive failure was made. Digitalis was increased to 4½ grains (0.3 Gm.) a day. The removal of 1,250 cc. of fluid from the abdomen gave considerable relief to respiration. Southey's tubes were inserted and during the course of two and one-half days 1,600 cc. of fluid was withdrawn; the skin of the legs was considerably less tense and the patient was more comfortable. The anasarca was well controlled by digitalis and diuretics, but the patient went slowly downhill and died at the end of two weeks of bronchopneumonia.

CASE 7.—N. G. (private patient), a grocer, aged 56, seen in consultation, had had severe angina pectoris for three years and for the past two months attacks of cardiac asthma, dyspnea on slight exertion, and increasing edema of the extremities in spite of digitalis and mersalyl. On physical examination he was found to have a very large heart, normal rhythm, pulsus alternans, and evidence of marked congestive failure. The blood pressure was 185 mm. of mercury systolic and 120 mm. diastolic. The edema was extensive. Southey's tubes were inserted but were kept in place with difficulty. A superficial infection developed and it was thought best to discontinue the use of the tubes; only 500 cc. of fluid was obtained. The patient was not relieved, went progressively downhill, and died a few weeks later with marked congestive failure.

CASE 8.—H. A. (Massachusetts General Hospital), a factory worker, aged 77, entered the hospital because of abdominal pain, loss of appetite, frequency of urination, and swelling of the legs for two months, becoming progressively worse. On admission he was found to be emaciated and uncomfortable in all positions. There was no edema of the scrotum, and no abdominal fluid could be demonstrated. There was a questionable mass in the epigastrium, thought to be the stomach. The heart was considered normal for a man of his age. His condition was critical; although a definite diagnosis was not possible, abdominal carcinomatosis was felt to be most likely. Because of the marked edema, Southey's tubes were inserted and 500 cc. of fluid was obtained in three hours, without noticeable relief of the tension of the legs. The patient being practically moribund, the tubes were removed, and he died one hour later. Carcinoma of the pancreas, with metastases to the liver and peritoneum, was found at postmortem examination.

TABLE 2.—*Analysis of Edema Fluid and Comparison With That of Blood Serum and Normal Cerebrospinal Fluid*

	Blood Serum	Edema Fluid	Normal Values for Cerebrospinal Fluid (Ayer and Fremont-Smith)
Case 4			
Sodium, mg. per 100 cc.	328	321	
Chloride (as NaCl), mg. per 100 cc.	544	570	720-750
Nonprotein nitrogen, mg. per 100 cc.	24	23	12-18
Total protein, Gm. per 100 cc.	6.97	0.695	0.10-0.45
Total solids, Gm. per 100 cc.	8.64	1.60	
Sugar, mg. per 100 cc.	98	98	50-75
Case 6			
Sodium, mg. per 100 cc.	313	320	
Chloride (as NaCl), mg. per 100 cc.	553	627	
Nonprotein nitrogen, mg. per 100 cc.	33	27	
Total protein, Gm. per 100 cc.	5.95	0.407	
Total solids, Gm. per 100 cc.	7.82	1.35	

COMMENT

The fluid from two of our patients has been analyzed and compared with an analysis of the patients' blood serum by Dr. Frank Fremont-Smith, who finds that it resembles fairly closely cerebrospinal fluid, except for the higher protein content and the lower chloride content which go hand in hand (table 2).

It will be seen from these cases that one patient did not live a sufficient length of time to give the method an adequate trial. Of the remaining seven patients, one was not relieved and the use of the tubes resulted in a superficial infection which made the patient even more uncomfortable for several days but did not affect the ultimate prognosis. One patient was slightly improved until death two weeks later from bronchopneumonia; five patients were definitely relieved so far as the edema

was concerned, and the results in two of these cases were striking. From the nature of the cases selected for this procedure ultimate recovery is anticipated in only a small percentage; however, the mechanical removal of the excessive fluid may be a means of sparing the patient great discomfort, and occasionally it may even postpone indefinitely a fatal termination.

Others have used somewhat similar methods with successful results. DeStéfano[11] has employed direct drainage by means of small platinum needles under the skin, and in his hands this method has proved effective and harmless in 100 cases. In one of his patients 27 liters was evacuated in forty-eight hours; in only one case was there a slight superficial infection, which subsided in the course of twenty-four hours.

SUMMARY AND CONCLUSIONS

1. In eight cases of extensive edema, mostly the result of congestive heart failure and resistant to medical therapeutic measures, we have employed Southey's tubes inserted into the edematous subcutaneous tissue of the legs or scrotum. In two of our patients the results were strikingly beneficial, following the removal of 16 liters in the course of two days in one case, and of 9 liters in three and one-half days in another. In three patients there was moderate relief; in one case only slight improvement was noted; the remaining two patients were not relieved.

2. In suitable cases the use of Southey's tubes is a valuable therapeutic procedure, and we believe that the employment of this method as recommended many years ago by Reginald Southey should be revived.

ABSTRACT OF DISCUSSION

DR. F. JANNEY SMITH, Detroit: There is unanimity of opinion that hydrothorax, if extensive, should be tapped as the opening move in the treatment of myocardial insufficiency; likewise that ascites, if responsible for a tense abdomen, elevated diaphragm and respiratory embarrassment, should be drained in a similar manner. But the mechanical removal of fluid from the lower extremities by means of Southey's tubes has, for the most part, been placed on the medical museum shelf. In part, this has been due to the increase in our resources in the treatment of edema of cardiac origin, to the development of newer and efficient diuretic drugs, to the increasing use of the high carbohydrate diet in treating the water-logged cardiac patient, and to the general improvement in our knowledge of how to treat congestive cardiac failures as a whole. Again, the management of surgical incisions or punctures in the edematous lower extremities requires the utmost aseptic precautions and after-care; and the practitioner prefers not to risk the development of a cellulitis with its obvious association with such punctures or incisions. And now Dr. White is taking these medical antiques down from the shelf and putting them rightly back into practical use again. However, in the introduction of Southey's tubes or a suitable trocar into the subcutaneous tissue of the leg and in leaving such tubes in situ, although, owing largely to the steady outflow of edema, secondary infection does not often occur, it is a real danger whenever a foreign body is left in the tissues and is continuous with the outside world. I would therefore suggest that, in those cases in which marked and obstinate edema of the lower extremities and genitalia indicates mechanical removal of fluid from the lower extremities, acupuncture may be tried before resorting to Southey's tubes, or if Southey's tubes are not readily available. It would seem that the main advantage of Southey's tubes, after all, perhaps lies in the ability to collect and accurately measure the fluid obtained and the avoiding of soaking the bed and dressings. But if careful aseptic precautions are taken and bulky dressings used, acupuncture can be carried out, making use of an 18-gage needle, making perhaps six or more punctures in either extremity. Owing to the roundness of the puncture wound and the outflow of edema, these may remain open for days and large volumes of fluid can be obtained in this way. The use of deep incisions into the edematous lower extremity is objectionable because of the great probability of secondary infection.

DR. ARTHUR C. MORGAN, Philadelphia: In a teaching experience of more than thirty years, I have been continuously using Southey's tubes. I should like to call attention to one or two points in respect to Southey's tubes. The tube itself should be made of silver and not of aluminum. Silver has chemotactic power in repelling invasion of micro-organisms. It is perfectly safe to introduce these needles or the cannulas into the edematous tissue, allowing the needles to remain for several days without infection occurring from them. Sometimes, however, because of the devitalized condition of the tissues, a cellulitis, rather than erysipelas, may develop, and this can easily be controlled by removing the needles and then treating in an aseptic manner the local sore that is present. The stem of the needle itself must be well made so that it will not bend or break. Having many perforations in the cannula instead of one in the distal end is important. Usually eight are found in all instruments now on the market. That permits drainage by capillary oozing and seeping to the external surface. Instead of using the rubber tubing, I wrap ordinary gauze bandages around the leg and put a piece of oil cloth down on the floor, or a rubber mat on the bed, and then an old blanket to absorb the fluid. With these patients sitting in a chair, with the feet dependent, all I do is to get a child's bathtub, have the blanket put inside and let them drain. I have seen gallons come out in that way. I have seen edema of the hands likewise much benefited because of the insertion of the needles in the legs. The advantage of the Southey tube is that the kidneys or the bowels do not have to remove the extraneous fluid. Digitalis or any other blood pressure raising drug is not needed to carry off this extraneous fluid. I would emphasize that this will not apply to the relief of edematous tissue from inflammation. It must be hydrostatic fluid.

DR. EDWARD F. BLAND, Boston: We have felt that these tubes have a distinct advantage over the usual methods; namely, that the patient is able to lie in bed with relative comfort without being inundated by the fluid necessarily drained into the bed from other methods of attack. The ease with which infection may occur is greatly lessened since the capillary flow is constantly away from the point at which the needles are inserted. A slight infection occurred in one case, a patient who was irrational, difficult to manage, and treated outside the hospital. In this case the tubes came out on several occasions and were replaced by the attendant. In none of our other cases have we had a case of infection. In the series of 100 cases reported by De Stéfano treated in this manner in only one was there a slight superficial infection.

11. DeStéfano, J.: Drainage of Edema, Semana méd. 1: 101, 1923.

Lavoisier.—The modern era of the science of nutrition was opened by Lavoisier in 1780. He was the first to apply the balance and the thermometer to the investigation of the phenomena of life, and he declared "La vie est une fonction chimique." The work of today is but the continuation of that done a century and more ago. Lavoisier and Laplace made experiments on animal heat and respiration. The great German chemist Liebig received his early training in Paris, residing there in 1822. Liebig's conception of the processes of nutrition fired the genius of Voit to the painstaking researches which laid the foundation of his Munich school. These have been repeated and extended by his pupils, of whom Rubner is chief, and by others the world over. Thus the knowledge often transmitted personally from the master to the pupil, to be in turn elaborated, had its seed in the intellect of Lavoisier. It was he who first discovered the true importance of oxygen gas, to which he gave its present name. He declared that life processes were those of oxidation, with the resulting elimination of heat. He believed that oxygen was the cause of decomposition of a fluid brought to the lungs, and that hydrogen and carbon were produced in this fluid and then united with oxygen to form water and carbon dioxide.—Lusk, Graham: Elements of the Science of Nutrition, Philadelphia, W. B. Saunders Company, 1928.

INTRACAPSULAR FRACTURES OF THE NECK OF THE FEMUR *

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Inherently we, as traumatic surgeons, recognize that in the management of intracapsular fractures of the neck of the femur we are circumstanced by two major problems not encountered in any other fracture: the age incidence and the structural incidence.

First, the age incidence, because the vast majority of patients are in or beyond the fifth decade. Shaft fractures of the upper extremities and some of the lower extremities in this age group do not dismay us, because the enforced recumbency is less absolute and less prolonged. We long have recognized the need for early mobilization in all types of fractures, especially in the articular group. Yet, despite this clinical edict, we have continued to immobilize hip fractures, thus disregarding the lessons learned and practiced in other joint fractures. Further, in hip fractures, as in no others, immobilization induces local and general stasis in the joint with the poorest local circulation and in the person with the poorest general circulation.

Second, the structural incidence, for in many of these cases, utter failure to repair is noted because of absorption of the narrow part of the neck. There is in this area a quadrilateral segment which seems to resist bone regeneration even though the original reduction has been entirely adequate, the splintage efficient and the after-care exacting.

Many explanations are offered for this distressing failure, often inexplicable in view of the early promise of recovery. None of these explanations are wholly satisfactory, and again we are reminded that the traumas, like pathologic processes elsewhere, can be listed in three prognostic groups:

A. Recovery without definitive treatment.
B. Recovery with definitive treatment.
C. Failure with or without definitive treatment.

The first of these get well no matter what is done; the second get well depending on what is done; the third do not get well whatever is done.

My belief is that many in this neck of the femur group fall into the third or failure class, and the contrast between them and the base of the neck group is so striking that clinically the latter can be regarded as high fractures of the shaft with a corresponding prognosis. There is probably no fracture in which failure is more frequent than in this zone, and surely there is no other fracture so surrounded by pessimism even from the days of Hippocrates. For a long time union of any sort was denied; then fibrous union was admitted, and now the accepted view is that bony union is obtained often enough to warrant the attempt. It must always be remembered, however, that our present attitude of optimism must accord with the physique of the patient and the physics of the lesion. We are dealing usually with poor material systemically and locally, and hence guard the prognosis.

REASONS FOR FAILURE

The structural incidence has been mentioned. We are told that this quadrilateral area ("calcar femorale") is cancellous and we remind ourselves that similar bone elsewhere repairs feebly. Witness the os calcis, the body of the vertebra, the lower end of the radius.

The blood supply of the femoral neck is easily compromised by the fracture in question, and when thus affected there is the unusual situation of a small section of bone robbed of vitality, contained in a vacuum, bathed in a mixture of blood, serum and synovia, at body temperature. Under the circumstances, is it any wonder that this fragmented cancellous bone literally stews in its own juice, digests and then absorbs? This virtually resembles an attempt to perform a spontaneous reconstruction operation by bringing the outer section of the neck against the head of the bone.

It is said also that the nutrient vessels of the neck of this bone are atheromatous or become readily plugged and thus ischemia and ultimate local death ensue. We know that this occurs in other areas when reduction is adequate, as, for example, in the lower third of the tibia, a zone which in my experience ranks first as to nonunion. It is said also that calcium or phosphorus deficiency is a factor. I have not found it so in this or any other fracture.

Endocrine disturbance, the presence of other diseases and general inanition are factors of no proved value in explaining why in the one case union occurs and in another no union.

To me the basic factor of nonunion in any fracture is failure of coaptation due to interposition of soft or hard parts. In other words, there is a group that starts with a spontaneous arthroplasty because of the interposition of tissues incidental to the fracture itself or the management of it. A skin wound fails of primary union unless coaptation is adequate, and I am quite sure that a bone wound (a fracture) acts likewise.

As explanatory, then, of nonunion in this hip group, it may be said that we are dealing with an area of known poor repute in which fragments of bone and perhaps frayed capsule and iliopsoas are acting as interposition factors. Certain it is that there must be some determining elements in some of these fractures to cause nonunion, the absence of which means union.

If, then, we agree in believing that every fracture of this sort is a potential hazard, it is the part of prudence to adapt our therapy accordingly.

THE TREATMENT

Hip cases may be divided clinically into three grades of physique: the A or good grade, B the fair grade, and C the poor grade. This accords with the classification in other traumapathies wherein an attempt is made to repair in terms of the kind of material that there is to work with. Obviously an arteriosclerotic patient of 70 is not a good surgical risk from any standpoint; but the fallacy of gaging by the calendar rather than by the condition is well known. A case in point is an intracapsular fracture in a patient, aged 92, who was a better risk than many others aged 50 or less.

I saw in consultation a type 2 intertrochanteric fracture in a patient, aged 102. The point at issue was the safety of allowing her out of bed, and on her first day of freedom she sat up seven hours.

In passing, let me revert to what I call the "wren" type of patient, who will easily be recognized. Usually it is grandmother, aged about three score and ten, and she is a blessing in any family and to any family physician or any family surgeon. She never weighed more than 110 pounds in her life. She has not been in bed a day since her last child was born thirty-five years ago. She hops, chirrups, cavorts all over the place and has been in at the birth and sickness of all

* Read before the Section on Orthopedic Surgery at the Eighty-First Annual Session of the American Medical Association, Detroit, June 26, 1930.

the grandchildren and is still the dynamo; she is rarely still. Every physician has one or more in his practice and would not exchange her as a prospect for three of the flapper age who lead the sheltered life of the poorly reacting, noncooperating, pampered individual. To consign this type of patient to the aged class because of her calendar age is to consign oneself to the dotage in intelligence.

In this day f x-rays, failure to make the diagnosis occurs less often, and even without the films every hip injury is recognized as a fracture if there is rigidity in Scarpa's triangle and if there is inability to lift the heel off the bed with the knee straight.

Formerly, some competent surgeons assigned the class C patients to semirecumbency; the limb was kept in position by sandbags, the heart, kidneys and lungs were watched, and the patient was virtually consigned to the inevitable.

In the A group and in some of the B group the plaster-of-paris abduction cast was regarded as the elective treatment, a method so adequately stressed by Royal Whitman and numerous followers. I have long objected to this form of treatment as a routine because the patient was not a good subject for the act of reduction (with or without anesthesia) or for the process of retention. There were many of my patients in whom this plaster-of-paris appliance became not only immobilization but also immolation; others, notably the wren type, who resented it enough to rebel and get a good physician; others, so fat and bulky that the appliance was unbearable supercargo; others who were impeded so much that respiration became embarrassed despite frequent change of position, and others in whom bed sores developed even when expected and guarded against. Finally, it never appealed to me as rational to immobilize this joint fracture wholly when I mobilized every other joint fracture, especially in view of the bad repair reputation of this articulation.

Like every one else, I have had good results and poor results with this plaster-of-paris treatment. The fact is that, despite perfect reduction and perfect retention, this spica treatment is no guaranty of success in and of itself. Recently, in consultation, I saw such a case in a 19 year old student of sturdy physique.

Accordingly, I have abandoned this early immobilization method in nearly all cases and now resort to traction until union is attained, and I then allow the patient to become ambulatory in walking calipers or a plaster spica.

There is nothing new in this procedure, and as long ago as 1872 Maxwell advocated what in effect is the same treatmnt. Ruth says he was taught this method by Maxwell and hence arose what has become known as the Maxwell-Ruth method. Ruth in 1921 presented this procedure before this very section at the Boston session under the title "Fractures of the Femoral Neck and Trochanters: A Rational Treatment." In a well considered article he refers to the procedure as the "anatomic method," stressing such factors as the early reduction attained by flexing the thigh and then maintaining the corrected position by vertical traction along the entire limb, and lateral traction to control the upper fragment. He asserts that union is obtained in about four weeks, and thereafter the patient is ambulatory on crutches or in a brace for a period of from "four to ten months." He says that unaided walking is possible in trochanteric fractures in six months, in eight months in extracapsular fractures, in twelve months in intracapsular fractures.

As stated, the Maxwell-Ruth method is to obtain vertical traction by attaching adhesive plaster along the entire lower limb from the ankle to the midthigh. A part of the technic is to mobilize the knee manually at frequent intervals so that a stiff knee may not compromise an otherwise satisfactory result. I modify this part of the process by placing the adhesive plaster on the thigh only, mobilizing the knee by motion obtained through an attachment on the sole or about the ankle.

In this fracture, as in all others, I have long attempted to classify or type the cases in terms of the displacement or nondisplacement of the fragments. Type 1 in any fracture is that group in which the fragments are separated or overlapped; type 2 is that group in which the fragments are in contact and not overlapped. There is as much difference in the management and potential results between type 1 and type 2 as there is between a simple benign catarrhal appendix and a malign ruptured appendix.

Of 100 consecutive cases of fracture of the femur recently reported [1] from my service, 14 per cent were in the hip, the age range varying between 41 and 92 years.

TRACTION METHOD

1. Both knees are flexed to from 150 to 165 degrees. This is best provided by a bed of the Gatch type, which allows the patient to assume a semiseated position with the knees bent to the desired extent.

2. Moleskin adhesive plaster is applied as high as the groin on the inside and to the crest of the ilium on the outside. This encircles the limb except for a spacing of a few inches on the anterior and posterior surfaces. It is held by spiral strips of zinc oxide adhesive plaster and a gauze or muslin bandage into which adhesive plaster is intertwined to prevent slipping.

3. The two lateral straps of adhesive plaster extend three or more inches below the femoral condyles and a spreader is then attached to them.

4. To the spreader a cord is fastened, and this in turn leads to a pulley at the foot of the bed or to the overbed frame of the Balkan type.

5. The limb is widely abducted and internally rotated manually, or that position is attained by the traction. As a guide, a cross is marked on the middle of the patella and the patient and attendants are cautioned to keep this marker pointing straight upward.

6. A weight of from 15 to 30 pounds is attached to the cords and the foot of the bed is elevated on blocks ten or more inches.

7. Adhesive plaster is applied to the sole and to this is attached a cord to permit knee flexion.

8. Lateral traction, if required, is obtained by adhesive plaster passed around the limb as close to the groin as possible. To prevent cutting into the skin, a strip of felt or padded binder board (Ruth) is placed next to the skin, and over this the encircling adhesive plaster is fastened. A spreader is attached to the adhesive plaster and this in turn leads to a cord and weights hung to an upright at the side of the bed opposite the great trochanter. The fracture side of the bed is elevated also if additional traction is needed. The weight is usually one-third that employed in the vertical traction.

If it is impossible to provide adequate home or hospital care, it may be permissible in the "wren" type of patient to apply the plaster-or-paris sitting-in-a-chair cast. To do this a kitchen chair is used, the back and one leg of which is padded; a hole is cut in the seat

1. Goldblatt, David: Ann. Surg. 91:739 (May) 1930.

and then it also is padded. The patient is thus fastened in plaster to the back, seat and leg of the chair. Hence knee and hip flexion is provided, abduction is adequate, and, if wheels or casters are added, this light weight patient becomes self-ambulatory.

At night the patient and the chair are placed in bed and thus, virtually, an inclined plane position is constantly maintained.

DURATION OF TRACTION

Within from forty-eight to seventy-two hours, reduction is usually accomplished as indicated by the position and by roentgenograms.

The weights may be gradually reduced after four weeks and usually are removed for a test after from six to eight weeks.

Weights are discarded if: (*a*) the limb does not rotate; (*b*) pushing up or pulling down on the leg gives identical roentgenograms; (*c*) the weights can be pulled up, or the limb can be lifted off the bed by the patient. A period of one week is now allowed with no support except a long sandbag on the outside of the lower thigh. Thereafter, the patient is fitted with walking calipers and a pelvic band. Soon this is discarded at night and later trial trips for weight bearing are permitted. When there is no prolonged reaction in terms of pain, swelling or local heat, the apparatus is wholly discarded. In others at this stage, a plaster spica may be substituted.

On an average the patient is in bed from ten to twelve weeks and up and about on calipers from six to twelve weeks. Thus the disability period approximates from four to six months.

Naturally a patient of heavy build is less early given freedom than a person of light build, and if the roentgen check-up is unsatisfactory, the weight bearing period is postponed.

From the first, the patient is urged to shrug the kneecap and otherwise contract the quadriceps. When available, massage of the limb is provided, and later certain "setting up" exercises for the extremity are prescribed. In other words, physical therapy is made a coincidental and not a retroactive element in treatment.

RESULTS

Disability and deformity to some extent is the usual outcome. However, there are many instances of fair function in the presence of fibrous union and extensive absorption.

In the group in which disability is extreme, the propriety of open operation will depend on the general physique of the patient.

Reconstructive operations are reserved for that group in which absorption leads to nonunion, or deformity is great enough to prove disabling.

ADVANTAGES AND DISADVANTAGES

1. This fracture is placed in the group in which inspection and mobilization are provided after the manner of other joint fractures. The disadvantage is stated to be that this fracture demands immobilization for success; with this statement I do not agree.

2. The general condition and nursing care of the patients are enhanced by the freedom thus provided. The claimed disadvantage is that too much freedom is thus provided.

3. There is no apparatus to impair the local or general circulation; the patient may assume a semiseated position; decubitus can be avoided. On the contrary, it is asserted that a properly applied abduction casing of plaster of paris provides equal security against identical complications. With that view my experience does not correspond.

4. This method affords ample opportunity for inspection and coincident physical therapy. Per contra, it is urged that inspection and physical therapy are not needed in this type of fracture. From that view I also dissent.

CONCLUSIONS

1. Fracture of the inner part of the femoral neck is potentially a hazard because of the anatomic conditions and the tendency toward spontaneous absorption despite adequate replacement and retention.

2. The age incidence adds to the hazard because patients at 60 years or beyond are usually poor surgical risks for any procedure requiring recumbency.

3. Adhesive plaster traction provides adequate replacement and retention without anesthesia and the burden of absolute immobilization represented by the plaster-of-paris spica.

4. Treatment that permits constant inspection, mobility and freedom from local and general stasis accords with the principles found applicable to articular fractures elsewhere.

5. Operative treatment for early cases is usually unwise because of the anatomic and age factors mentioned.

115 East Sixty-Fourth Street.

ABSTRACT OF DISCUSSION

DR. CHARLES L. SCUDDER, Boston: Fractures of the neck of the femur are always intracapsular. Until Royal Whitman suggested as treatment of a fracture of the neck of the femur reposition of the fracture fragments with firm contact and immobilization, the treatment of this fracture could be described as chaotic. Whitman's method has been employed properly and improperly throughout this country. It has not been used abroad generally. There are almost no end-results adequately observed of the Whitman treatment today. In general, the method has not been attended by ideal results. Good function results in from 55 to 60 per cent of the cases. Because of the uncertainty of securing good results, men all over the world have been using different methods of treatment tentatively. There have been many operative procedures with bone grafts, plates and nails, and the method by traction alone and early mobilization. The facts presented by Phemister and Speed with regard to the changes taking place in the head of the femur and in the fractured neck months and years after the injury must be reckoned with in any study of the efficiency of any method of treatment. An interval of several years (from three to five) must elapse before one can get the real end-result of the treatment of the fracture of the neck of the femur. It is possible that opening up the capsule at the seat of fracture, replacing the fragments, grafting muscle to the neck, and leaving the wound open for granulation tissue to enter from an extracapsular source, to bring blood vessels and granulation tissue there, may be helpful. Clay Ray Murray of New York is at work on this problem, and, I believe, is on the right track. Dr. Moorhead believes in the Maxwell Roth method. If he can succeed in correcting and replacing the fragment as the Whitman position does it, that is one thing; but he has not given the results of that treatment. If he can better it and go above the 40 or 50 per cent, there may be something in it, but I doubt very much if the method advocated by Dr. Moorhead will give such results as are obtained by the Whitman method. Operative procedures are merely incidents in the progress of the treatment of fracture of the neck. Smith-Petersen, in Boston, is conducting an experiment with a group of older people. He inserts a steel nail, specially constructed. The fracture is impacted after the nail is in place. His patients have little or no shock or pain, are gotten up on crutches at an early date and bear weight early.

DR. KELLOGG SPEED, Chicago: The fate of Dr. Moorhead's stewed bone appealed to me very much. I found it hard to reconcile the picture of this 70-year-old flapper with the stewed bone. I likewise wondered how this dynamic person would be able to electrify the head of the femur which had undergone aseptic necrosis and some of the late symptoms which are often misinterpreted for nonunion of the fracture of the neck of the femur. Sometimes the neck of the femur unites and yet the head later disintegrates and is in a state of aseptic necrosis. A creeping substitution of bone in the head may follow from circulation arriving by the round ligament and the other sources of blood supply to the head; union then occurs, but when the head dies it breaks down, flattens and secondary symptoms follow. Those phenomena are not real nonunion; they are secondary things dependent on certain disturbances, usually unguarded weight bearing as far as any one knows. Possibly this dynamic flapper may electrify this dead bone and cause it to revive—I don't know; but whether the nonunion is true or whether it is delayed change is something yet to be studied and worked out in a careful analysis of cases followed for one, two or five years with roentgen examination.

DR. ARMITAGE WHITMAN, New York: I can do no better than to reiterate the conclusion of Dr. Scudder's discussion, that until something better has been devised, the abduction treatment is the method of preference. There are one or two other points of interest. One is the complete difference of opinion that depends on the tools with which one person or another is familiar. There are two schools of thought—that of one who is an expert with plaster, and that of one who is not. It is on that difference that most of the discussion of treatment of fracture of the neck of the femur rests. Sir Astley Cooper spoke of three fractures which did not unite by bone: fracture of the olecranon, of the patella, and of the neck of the femur. I think it can now be agreed that their union depends simply on their efficient treatment. The position of abduction, hyperextension and slight internal rotation is the only one in which the bones are given the opportunity for repair. Given prolonged and efficient immobilization in that attitude and they will unite, even after almost complete absorption of the neck. Dr. Moorhead spoke of his grandmother, immolated in plaster of paris—a statement correctly reflecting the feeling of the average practitioner and the average nurse. To me, plaster means exactly the reverse. The moment the fracture is reduced and the plaster applied, the patient is relieved of pain. He may be, and must be, turned in bed. He may be set up on the side of the bed. He may be taken home and cared for by absolutely untrained attendants, representing a considerable economic saving. Most important of all, Dr. Moorhead's grandmother would have died not only of pain, bed sores and filth, but chiefly of depression induced by the tradition that fracture of the hip in the aged is a terminal injury. When I have his grandmother in plaster, able to turn without discomfort, to sit up, to go out, even to be sent from San Francisco to New York, the psychologic effect is of incalculable importance. I know of no treatment that is 100 per cent effective, but I must emphasize that in proper hands, given a person who knows how to apply plaster of paris, the abduction treatment with the plaster-of-paris spica is not only the best treatment for the fracture but also the best treatment for the patient.

DR. JOHN J. MOORHEAD, New York: Without attempting to show the five or six slides which emphasize what I tried to say, I will say that by a process of traction and suspension an attempt was made to produce the position of abduction and to go through the first phase of treatment of any fracture and reduction and maintain it by a nonimmobilizing form of apparatus and apply some form of ambulatory treatment. I should like to emphasize this: All know the greatest difficulty in getting union in this type of case and the embarrassment felt in having a case presumably going on to a very nice state of repair and suddenly it goes over, and under the best possible statistics. Dr. Scudder says that from 45 to 50 per cent of these patients do get satisfactory results, and it occurred to me if that was the best that could be done by outsiders and my results were no better than that, it might be worth while to treat a series of patients by traction and suspension, which was the method giving such excellent results in other types of fracture, and that was the purpose in calling attention to this.

PLASTIC REPAIR OF INGUINAL HERNIA*

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In the majority of herniorrhaphies, either direct or indirect, the chief complicating factor confronting a firm and secure closure is the necessity of making an adequate provision for the transmission of the structures of the spermatic cord. It is on this account that the closure of an inguinal hernial opening in the female is a simpler and surer procedure.

The Bassini operation, though adequate in a large number of cases, is in reality no more than the removal of the enlargement of a congenital sac and resuture of the structures, plus a floor construction of muscle tissue that is not firm and the conjoined tendon that must be under unsafe tension. It presents the disadvantage of leaving the opening directly through the aponeurosis, which is the fundamental tissue support, ranking next to bone in this respect, thus leaving a postoperative "weak spot" in a vulnerable portion of the aponeurosis.

With these points in mind, I worked out a technic years ago employing the principles of plastic surgery which I believe is applicable to the majority of surgical procedures for the repair of inguinal hernias, whether direct or indirect, securing the integrity of the cord in a new formed canal and at the same time enabling as secure a plastic repair of the defect in the male as in the female.

About the time this technic was brought out Skillern presented a plastic flap technic lacking in the essential advantages presented by mine. About five years ago Roberts presented a plastic repair along different lines but having advantages over the old Bassini procedure.

Muscle fibers per se are inadequate to resisting strain. Fascia may be considered as flexible bone, being made up of similar mesoblastic structure minus the lime salts. Just as the fascia holds in position the groups of muscles moving the long bones of the body, so does the fascia of the abdominal cavity hold its structures within it. These facts are fundamental and should be borne in mind in the consideration of herniorrhaphy. The successful suture of a postoperative hernia is enhanced by an overlapping or plication of the strong fascia, and the employment of this principle has made the Mayo umbilical hernia technic a standard procedure for years. The same principle applies to the inguinal hernias, and if the principles are correctly carried out the successful result is practically as sure as in the repair of the umbilical hernia.

The weakest point is the lower extremity of the inguinal canal from Hesselbach's triangle down to the pubic spine. To bring the spermatic cord out of the abdominal cavity at this point interferes with a firm repair in the most vulnerable area for recurrence. It is on this acount that the technic presented is advantageous. The opening for the cord is removed from the weakest point and at the same time the vulnerable area is covered with a double fascial layer beneath which the conjoined tendon and muscle may also be attached to the contiguous inner aspect of Poupart's ligament for additional reinforcement.

The marginal suture does not insure the security as does the plication of fascia. This is especially true in

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the lower extremity of the external oblique aponeurosis, which is sometimes attenuated or presents the appearance of thickened bands loosely bound together. While the marginal suture line may not give way in such a case, subsequent strain may separate the fascia above or below the suture line. Such a separation already exists at one point in order to permit the exit of the spermatic cord.

Plication, as extensive as the local conditions and structures present may permit, enhances the permanence of a closure as no other suture can. It is far superior to depending entirely on suture of deeper and less firm structures of the muscle or depending on the suture of the conjoined tendon to the lower end of Poupart's ligament, which must necessarily be under a more or less hazardous tension. Soft structures such as muscles or firmer structures sutured under tension are not dependable. By removing the cord from this insecure area and plicating the medial flap of the external oblique aponeurosis beneath the lateral flap, a double aponeurotic layer is placed as a covering over this vulnerable spot, and no opening is left at this point. Beneath the flaps of the aponeurosis Poupart's ligament may be sutured to the conjoined tendon and the triangular fascia, down to and on the pubic spine as the size of the flaps warrant, as additional support. The cord is placed as far toward the upper end of the incision in the aponeurosis as the anatomic environments warrant, beginning at the internal ring, and is brought out through a new canal between the two layers of the aponeurosis. The direction of the cord in its new canal is medial and slightly upward. The plication is then continued beyond the new canal externally. This plication is secured with two rows of continuous sutures, with or without a few intermediate sutures. The exact method of placing these sutures should be governed by the anatomic materials available in the immediate case. As the cord emerges from the internal ring, it is not angulated but bends loosely, medially and slightly upward, resting on a soft muscle pad.

Emerging from the upper suture line, which may be termed the new external ring, it loosely takes a downward medial course. I never experience any difficulty on account of the slightly greater cord length required, because a greater length can be readily secured by loosening the surrounding tissues down toward the scrotum. It has been my experience that, if the testicle is temporarily held higher by this procedure, it gradually gravitates to a relatively normal suspension point. The embryologic ability for elongation and descent may not be entirely lost in adults.

Prior to the plication, as just described, of the external oblique aponeurosis, a preliminary deep suture of the conjoined tendon and fascia of the internal oblique may be made to Poupart's ligament, thus adding a third layer of firmness to the new-formed wall. This last reinforcement is the only added support which the Bassini adds to a simple fascia resuture, and there it must even be placed in a less advantageous position than is possible in the technic advocated in this paper.

It is advantageous to make the lower flap of the aponeurosis as long as possible. This is facilitated by a high splitting incision from the external ring. If the splitting is started at the medial aspect of the ring instead of at the highest point, a maximum length may be obtained and when the suture is completed all evidence of the former external ring is entirely effaced.

I find three distinct disadvantages in the Skillern operation, in which the lower or lateral flap is plicated beneath the upper or medial flap: (1) It is not possible to make so extensive a plication; (2) it is not possible to construct a new fascial canal for the structures of the cord without producing an additional curve having a sharp and disadvantageous angulation, and (3) the general reconstruction is anatomically incorrect.

The new canal for the cord as constructed in this technic is between the two layers of the aponeurosis at a right angle to the direction of its fibers; therefore strain and tension compress the canal and inhibit the possible formation of a new hernial protrusion. Such a compression has never, in my experience, produced any untoward effect on the vascular structures of the cord.

The new internal ring made by suture of the border of the upper flap low down on Poupart's ligaments beneath the lower flap (following suture of internal muscle and conjoined tendon) is identical with the old internal ring and the point of beginning of the new fascial canal. This point of angulation is not acute and the cord bends over a soft muscle pad. Furthermore, as the cord emerges from the new external ring, higher and medially, the bend is neither sharp nor disadvantageous.

The technic as advocated, with the plication of the lower or lateral flap over the upper or medial, presents advantages: (1) the broadest plication for insurance of permanence of closure; (2) the elimination of any sharp angulation of the cord which might be detrimental to its functional integrity, and (3) a new inguinal canal between fascial layers, which is compressed by strain or tension, thus mitigating the possibility of a recurrence of a hernia.

There is a diversity of opinion regarding the type of suture for herniotomies. Many have faith in the security of interrupted sutures individually tied. Here again may be gained a lesson from the general principles of plastic surgery; namely, the fewer buried knots the better, because of (1) the slowness of knot absorption with the possible danger of sloughing out, and (2) the possible danger of constriction from tight tying. The running suture, when accurately placed, favors ready absorption and is adequate to hold for the length of time that is required for fascial cohesion. The running stitch is not likely to produce the constriction that a single tie may.

Double chromic catgut of not too heavy a size will endure much longer than necessary for fibrous tissue cohesion, and with its use the number of knots needed is reduced to a minimum. I apply the running suture in such a way as not to cross the new fascial canal; thus there is no pressure from the sutures on the structures of the cord. The flaps are sewed separately above and below the canal and all sutures are tied separately on either side of the new canal.

By making a curved skin and fatty layer suture with a convexity upward some little distance above Poupart's ligament and reflecting the skin flap downward, the skin incision can be more securely dressed after operation, thus minimizing danger of subsequent contamination. A deep suture of the superficial fascia and fatty layer eliminates dead spaces and makes a soft cushion over the cord, as it lies on the outer surface of the external oblique aponeurosis.

The fascia, as bone, unites readily if all intervening tissues are removed, permitting actual contact of like structures. It is essential to remove the aveolar tissue

and fat particles thoroughly from the coaptating flap surfaces in order to secure a prompt and firm cohesion.

CONCLUSIONS

1. Better results may be expected if the fine principles of plastic surgery are applied to herniorrhaphies.

2. Fascia is the dependable tissue in a herniorrhaphy. Marginal suturing does not prevent a tendency of attenuated fascia to split. On the other hand, complete plication gives a greater coaptating surface and gives a double fascial covering.

3. The construction of the new canal minimizes, if not nullifies, the possibility of another peritoneal protrusion.

4. The direction of the new canal does not create any sharp angulation of the cord, produces no constriction, and permits the greatest degree of overlapping or plication of the flaps.

5. Careful construction and suturing of the flaps gives a maximum amount of "double layer fascia."

6. A careful cleansing of the coaptated fascial surfaces favors a prompt cohesion and avoids what might be termed a "fascial pseudoarthrosis."

7. Fixed routine should not be carried out in every case. Existing environments and available anatomic material should govern details of technic.

8. I believe that my technic eliminates the postoperative "weak spot" as well as lessening other insecurities of repair by the ordinary technic and makes the male herniorrhaphy practically as sure as in the female and almost as certain as the plicated umbilical.

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ABSTRACT OF DISCUSSION

DR. HENRY J. VANDEN BERG, Grand Rapids, Mich.: Dr. Pettit's operation is a good one; I have used practically the same method for a number of years. It is particularly useful in the direct hernia. The operation should be as simple as possible. In many cases, removal of the sac, if it is done completely, is all that is necessary. In order to do that, the best way is to close it from within, open the sac so that one can see exactly what one is doing, and put in the suture from the inside where it belongs. All are aware how effective the treatment of a femoral hernia is if it is done from within. In a child, that is sufficient in most cases; it is also in many adults in the simple cases. An important matter in the treatment of hernias is doing it in a painstaking way, doing everything carefully, tying knots securely. Too heavy sutures should not be used; the tissues should not be strangulated. The operation should be a work of art, done well and nicely. It does not matter so much what method is used. The same method cannot be used in every case; one has to use one's judgment about that. But it is important that one does it well. If it is so done, there will be few recurrences. Of course, there always will be recurrences, because tissues are being treated that do not heal well, and other things may happen; but if pains are taken it will help a great deal if there is no infection. Infections cause a certain amount of recurrences. Particular care must be taken with asepsis. Hematomas may produce a recurrence, so pains must be taken with hemostasis, especially with the little veins that are not thought much of; they may bleed later and spoil a good piece of work. Patients should not get up too early. They should be in bed for twelve or fourteen days or longer with old people whose tissues are not well nourished and do not heal readily. Then patients should be advised when they leave the hospital about not getting back to work too soon or putting any undue strain on the parts too early. They should be cautious, for from three to four months at least, and somewhat so for six months. Patients should be cautioned in winter against slipping on the ice or getting a sudden strain.

JUVENILE DEMENTIA PARALYTICA

A STUDY OF FORTY CASES *

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Any disease of which there have been more than 500 reported cases cannot be regarded as rare, and yet the incidence of juvenile dementia paralytica is probably under 1 per cent of all cases of dementia paralytica and under 2 per cent of all cases of congenital syphilis.

The original description of the condition is credited to Clouston,[1] who in 1877 described a boy of 16 who developed a clinical picture resembling in its essential features the adult form of dementia paralytica. It is now known, however, that this is true only when the disease appears in adolescence, whereas the majority of cases appear much earlier. The cases in the literature, for the most part, have been reported as single case reports or in groups of two or three. The only larger groups are those of Mott [2] (1899), 12 cases; Schlicht [3] (1915), 14 cases; Schmidt-Kraepelin [4] (1920), 40 cases, and Klauder and Solomon [5] (1923), 23 cases. Several writers have collected cases from the literature: Alzheimer [6] (1895), 41 cases; Thiry [7] (1898), 69 cases; Fröhlich [8] (1899), 47 cases; Hirschl [9] (1901), 20 cases; Wollburg [10] (1906), 33 cases; Fairbanks [11] (1908), 38 cases; Dahl [12] (1909), 71 cases, and Huguet [13] (1913), 7 new cases.

The present series includes forty cases, heretofore not reported, most of which have been personally examined by me. I am indebted to Dr. William A. White for the privilege of studying twenty-five of these cases at St. Elizabeth's Hospital, Washington, D. C., to Dr. Floyd Haviland for the study of eleven cases at the Manhattan State Hospital, and to Dr. A. L. Skoog for one case.

SUMMARY OF CASES

Sex.—The series includes fifteen males and twenty-five females, or a ratio of 1 to 1.6. This figure is in about the same proportion as that reported in other series and shows a marked contrast to the incidence of dementia paralytica in the adult, in which the ratio is approximately one female to four males.

Age at Onset.—There are several cases reported in the literature in which the onset is said to have occurred in the third year; this was so in one case in this series. This, however, is generally regarded as exceptional, the

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* Read before the Section on Nervous and Mental Diseases at the Eighty-First Annual Session of the American Medical Association, Detroit, June 26, 1930.

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2. Mott, F. W.: Notes on Twenty-Two Cases of Juvenile General Paralysis with Sixteen Postmortem Examinations, Arch. Neurol. **1**: 250-327, 1899.
3. Schlicht, J.: Casuistische Beiträge zur Lehre von der juvenilen Paralyse, Inaug. Diss., München, C. Wolf & Sohn, 1915.
4. Schmidt-Kraepelin, T.: Ueber die Juvenile Paralyse, Berlin, Julius Springer, 1920. (Monographien aus dem Gesamt. der Neurol. u. Psychiat., number 20.)
5. Klauder, J. V., and Solomon, H. C.: Juvenile Paresis with a Presentation of Twenty-Three Cases, Am. J. M. Sc. **166**: 545-559 (Oct.) 1923.
6. Alzheimer: Die Frühform der allgemeinen progressivens Paralyse, Allg. Ztschr. f. Psychiat. **52**: 533-594, 1895.
7. Thiry, C.: La paralysie générale progressive dans le jeune age, Thèse de Nancy, 1898.
8. Frölich, W.: Ueber allgemeine progressive Paralyse der Irren von Abschluss der körperlichen Entwicklung, Inaug. Diss., Leipzig, Bruno Georgi, 1901.
9. Hirschl, J. A.: Die juvenile Form der progressiven Paralyse, Wien. Klin. Wchnschr. **14**: 515-518, 1901.
10. Wollburg, G.: Ueber Dementia paralytica im jugendlichen Lebensalter, Inaug. Diss., Kiel, C. H. Jebens, 1906.
11. Fairbanks, A. W.: General Paresis in Childhood, J. A. M. A. **51**: 1946-1954 (Dec. 5) 1908.
12. Dahl, W.: Ueber jugendliche progressive Paralyse, Inaug. Diss., Uruzburg, 1909.
13. Huguet, J. F. J.: Observations et réflexions sur la paralysie générale dans le jeune age et la syphilis héréditaire, Thése de Paris, 1913.

usual age of onset being between the tenth and fifteenth years.

In the present series, there are seven cases in which the break was so gradual that no definite age of onset can be given and in every instance the child was feebleminded and very questionably ever regarded as "normal." There are an additional five cases that certainly must date from birth. On the other hand, there were six cases in which the children seemed normal and presented their first symptoms of dementia paralytica between 9 and 11 years, and twelve patients developing their symptoms between 13 and 17 years.

There are, then, these two very distinct types of onset: the vague and indefinite development of the disease in a mentally and often physically inferior child which may be apparent at birth or soon afterward; second, a more or less acute break, after some years of normal development of the child. In a later stage of the disease, these two groups are indistinguishable clinically and at any stage they are identical serologically.

In settling this question, the problem is made more difficult because, although inferior from birth, the type of case with vague onset is rarely diagnosed as juvenile dementia paralytica much earlier than the other type of case. This may be due in part to the rather low intelligence of the parents in the economic class from which most of the patients come, and in part to the optimism and disregard for comparisons evidenced by the parents of most hypophrenic children.

It must also be recognized that, even though feebleminded, these children disintegrate psychically to even a vegetative level and may exist at such for long periods. This might theoretically be explained in some instances if it is conceded that the progression of the infection is slow. In such instances the child's mental development is more rapid than the destruction by the infection, so that for a time he develops in spite of the presence of the neurosyphilis. It seems incorrect in such cases and certainly impossible to give any definite age as the age of onset, and more correct to regard the onset as at birth.

Duration.—The duration is variously given as from two to ten years, averaging perhaps four years, and usually regarded as being longer than in the adult form of the disease.

Here, again, the duration depends entirely on what is considered to be the age of onset, and in those cases in which it seems to have been present at birth cases may often be found lasting fifteen and even twenty years after the first symptoms.

In the cases in which development has been normal, several of the present cases have lasted more than ten years. In one case at the Manhattan State Hospital, about which there has never been any doubt as to the diagnosis of dementia paralytica and little doubt as to the hereditary quality, the patient was admitted in 1913 when 17 years of age and is still among those present at the age of 34. One patient in this study died thirteen years after the supposed onset, and two patients died after eleven years.

Family History.—Some of the best evidences for a neurotropic strain of spirochetes can be marshaled from a study of the antecedents of young patients with dementia paralytica. In this series, as in many others, a comparatively large proportion (25 per cent of the cases) of the parents have symptomatic neurosyphilis. Of these forty patients, three of the fathers and six of the mothers had dementia paralytica and in one instance both parents had the disease.

In addition, seventeen other patients had one or both parents who were actively syphilitic, three more who were probably syphilitic, and in three additional cases other siblings had syphilis. In one remarkable case the grandparents are all said to have had syphilis, one grandfather having died of tabes dorsalis, and both parents have syphilis, as does the only other child, a brother who is mentally defective.

Mention should be made that while there is no doubt that most cases of juvenile dementia paralytica are congenital in origin, there is no absolute proof in many cases that a primary infection was not acquired in infancy or early childhood. So far as is known, all the present cases were congenital.

Developmental History.—In twenty-three patients (58.5 per cent) of my group there was a retardation in the mental development. Fourteen of them were feebleminded in a marked degree and an additional nine were retarded. Physically, twelve patients (30 per cent) were retarded in their development. Twenty-five per cent (ten patients) gave a history of having convulsive seizures before a diagnosis of dementia paralytica was made. This, I think, is an important consideration in the study of epilepsy of congenital syphilitic origin. I have recently reported thirty-one cases of so-called idiopathic epilepsy in which there was sufficient evidence to establish a diagnosis of congenital syphilis, in which I associated the convulsive seizures with the syphilis. Thus it is apparent that some cases may have been included that may ultimately become frank cases of juvenile dementia paralytica in which the "epilepsy" was a very early symptom.

TABLE 1.—*Incidence of Neurologic Signs*

	Number of Cases		Number of Cases
	Cranial Nerve Lesions		
Optic atrophy	7	Strabismus	5
Pupillary changes:		Nystagmus	4
Argyll Robertson	11*	Facial paresis	2
Fixed	18	Speech defect	29
Sluggish	8	Dysphagia	4
Normal	4	Deafness	1
Inequality	7	Deviation of tongue	6
	Motor Signs		
Convulsions	14	Ataxia	15
Hemiplegia	6	Choreiform movements	4
Tremor of tongue	14	Gait disturbance	25
Tremor of face	11	Contractures	4
Tremor of hands	12		
	Sensory Disturbances		
Hyperesthesia	1	Headaches	1
Hypesthesia	1		
	Reflexes		
Tendon: Exaggerated	33	Babinski present	11
Normal	2	Ankle clonus present	11
Diminished	2	Romberg present	8
Absent	3		

(* One case showed an Argyll Robertson pupil on the left and a fixed pupil on the right.)

Bunker has called attention to the frequency in juvenile dementia paralytica of the Lorrain type of infantilism; i. e., the underdevelopment of stature but the maintenance of the body proportions. Subjects with this disease often seem to have arrested physical development, although I cannot agree that this is characteristic of most cases.

Neurologic Picture.—There are certain points of difference between the juvenile and the adult forms as regards the neurologic picture. These differences are

preponderantly the increase in extent and variety of the organic manifestations of destruction in the juvenile cases. Thus they show more cranial nerve involvement; i. e., optic atrophy, oculomotor palsy, facial paralysis, speech impairment and dysphagia. The juvenile cases show more extensive pupillary changes, complete fixation occurring much oftener than Argyll Robertson pupils. They show convulsions much more frequently and the motor symptoms in general appear earlier in the course of the disease. They show focal signs more frequently as evidenced by hemiplegias, jacksonian attacks, and occasionally cerebellar signs.

It is my belief that these organic changes are more frequent and more pronounced than in the adult because the disease process involves an immature rapidly growing tissue during its development and an early stage of development is recognized as being more susceptible to influence, more vulnerable to an infection, and more easily destroyed than an adult tissue.

The incidence of the various neurologic signs are shown in table 1.

Endocrine Symptoms.—Autopsy studies show that in a small number of juvenile patients with dementia paralytica there is an involvement of the thyroid, pituitary, pancreas or suprarenal glands. Clear-cut clinical pictures of dysfunction of any of these glands are rare. One patient in this series had suggestive

TABLE 2.—*Occurrence of Clinical Stigmas*

	Number of Cases		Number of Cases
Hutchinsonian teeth	6	Facial asymmetry	11
Deformed teeth	14	Cutaneous lesions (at birth)	7
High arched palate	9	Choroiditis	2
Prominent frontal bossae	3	Hydrocephalus	1
Saddle nose	4	Microcephalus	1

signs of hypopituitarism and one other of myxedema; neither were especially pronounced.

On the other hand infantilism, both of systemic development and of the genitalia, is not unusual. Nine cases (12.5 per cent) showed a general bodily infantilism. In the reports of 530 cases of juvenile dementia paralytica that I have reviewed in the literature, 96 cases showed hypogenitalism. In 223 cases of juvenile dementia paralytica in girls, 24 presented an infantilism of general bodily development. Twenty-six patients of this number showed amenorrhea, 7 of whom were over 20 years of age, 13 between 17 and 20 years, and 5 aged 16 years. These figures unquestionably represent a smaller percentage of such cases than actually exist, since many reports failed to include any mention of menstrual history. Furthermore, many patients with juvenile dementia paralytica develop the acute picture of their disease and may even run their entire course long before puberty and, consequently, are not of an age to show clear-cut symptoms indicating ovarian involvement.

Clinical Stigmas of Congenital Syphilis.—Clinical stigmas are not of particular importance in this condition except in exceptional doubtful cases. They may or may not be present. Their frequency of occurrence in this series is indicated in table 2.

Laboratory Diagnosis.—The blood Wassermann reaction was positive in thirty-five cases; in one it was negative and in four cases it was not made. The spinal fluid Wassermann reaction was positive in thirty-five cases; in five cases it was not made. Examination of the spinal fluid revealed from no cells to 260 cells, the majority of cases showing a normal count (10 cells or less). The colloidal gold curve in cases in which it was made showed a typical first zone (paretic) curve in nineteen cases and a second (syphilitic) zone curve in three cases.

The uniformity of positive laboratory observations is deserving of comment. At least in this series, the uniformity may be in part explained by the fact that a positive Wassermann reaction was regarded as an essential diagnostic criterion by the men originally seeing most of these cases. (Dementia paralytica for many has come to be largely a matter of laboratory diagnosis.) We [14] have expressed in our study of congenital syphilitic epilepsy the belief that the Wassermann reaction in the individual may be negative and yet the presence of congenital neurosyphilis may be established without a doubt. Likewise we believe there might be sufficient evidence in a case to establish a diagnosis of juvenile dementia paralytica with negative serologic observations.

The discussion of the laboratory observations in juvenile dementia paralytica confronts one with the much discussed "preparetic" stage of the disease, i. e., that stage in which the clinical picture is not paretic but the spinal fluid changes are typically paretic. Certainly such a stage must occur in most, if not every, case of the juvenile as well as of the adult form. The diagnosis of every case in the present study was agreed on by several other neuropsychiatrists in addition to myself, so that this point has no immediate bearing on this study.

It is conservative to continue to term such cases "preparetic." Apparently not enough such individuals have been followed after having been spotted as preparetic to determine their course. And yet for the most part we tenaciously hang to the more or less essential paretic colloidal gold curve in fully developed cases of dementia paralytica and at the same time give it questionable support in those feebleminded but neurologically normal patients. It might be a fair question to ask when to consider a preparetic child as having juvenile dementia paralytica. Must a pupillary sign be waited for, or a change in the reflexes, or what? Certainly one can judge from some of the histories of full-blown cases of juvenile dementia paralytica occurring in feebleminded individuals (such as several of the present series) that such cases must have had a "preparetic" stage if one is to concede the fairly well established fact that the spinal fluid abnormalities precede for a number of years the clinical evidences of neurosyphilis.

Consequently, it seems to me that one begs the point in labeling such cases "preparetic" instead of giving oneself the credit for having diagnosed a case of dementia paralytica in an early stage.

Mental Symptoms.—The mental picture seems easiest to interpret if the problem is again regarded as one of an overwhelming infection on an immature but rapidly developing brain. When the damage is done early in life, the result is feeblemindedness with breaking down of the perceptual, intellectual, emotional and motor machinery. When the damage is done later, the brain has had at least a start in its development, and arrest and regression are found at various levels, depending on the age. The later the damage occurs, the more nearly does the case resemble the picture of adult dementia paralytica. Regardless of the age at the time of the

14. Menninger, K. A., and Menninger, W. C.: Epilepsy and Congenital Syphilis, presented before the Association for Research in Nervous and Mental Disease, Dec. 27, 1929, to be published.

damage, all cases tend to assume a common clinical picture of simple extreme dementia.

Perceptually, the patient may show only minor changes except for his confusion. It was present in twenty-five cases (62.5 per cent) and disorientation in some degree in twenty-two cases (55 per cent). On the other hand, the patient may retain his more gross orientation until the disease is far advanced, as shown in six cases (15 per cent) of this series. Auditory hallucinations were present in six cases (15 per cent); one patient heard voices saying that her husband wanted her to die; one often heard God talking to him; one received messages and would shout to unseen persons; one heard voices saying good things about him. Two patients had tactile hallucinations, one of electricity and the other ill defined. Only one had visual hallucinations.

The development of the whole field of intellection depends on the age of the patient at the time the damage to the brain makes itself apparent. Early there are varying grades of feeblemindedness; later in all cases there is a deterioration or retrogression to a dementia. There was a history of regression in every case and an apparent mental deterioration in twenty-five of the forty cases. Regardless of the age of onset or previous mental development, the cases all reach a stage in which the mental picture is similar, and, except historically, different types cannot be distinguished.

Delusions are not rare in the juvenile cases. Eleven patients (27.5 per cent) in this series had paranoid ideas such as believing that they were being robbed, bewitched, mutilated or persecuted. Three (7.5 per cent) had grandiose ideas. One of the present patients, aged 20, talked of much money; a girl of 17 thought she had fabulous sums on the basis of which she ordered many expensive clothes; the third, a girl of 24, regarded herself as having much worldly wealth. But it seems reasonable to include other cases of younger individuals in which fighting was the result of pride in his prowess. Riding the subway all night was done in the belief that it was his specially granted privilege. Stealing was carried out without appreciation of the social significance. Much attention has been called to the absence of expansive delusions in the juvenile cases and it has been explained on the basis that "ambition and the sexual instincts do not become habitual passions dominating the will until after puberty." Such an explanation would construe grandiose ideas as concerned only with ambition and sexual instincts. It seems reasonable to expect the degree of grandeur of the ideas to be proportional to the age of the patient and consequently one cannot expect in the child the ideas of grandeur seen in the adult.

Emotionally the usual picture is an inadequate flattened response (twenty-four cases) with silliness, childish superficiality and euphoria. Many (twelve patients) are irritable at times and respond to any stimulus with a whine or a cry, or a temper outburst. Depression is occasionally present (eight cases); fourteen cases showed excited periods and six presented alternating periods of laughing and crying spells.

Much of the psychopathologic condition of the patient with juvenile dementia paralytica is demonstrated in his activity. The first mental symptoms are often behavior disorders: stealing, fighting, destruction of clothing or property, truancy, inefficiency, riding the subway all night, and other queer, unexplained acts. Eighteen (45 per cent) cases of this series demonstrated antisocial behavior. Mannerisms of speech and action are usually present: rambling silly speech, incessant chattering, profanity, laughing, mutism, collecting waste paper and other trinkets, and outbursts of temper. Fourteen patients (35 per cent) were untidy and four destructive. One was inclined to mutilate himself in various ways. Two were at times cataleptic and twelve (30 per cent) resistive.

Treatment.—Treatment seems to be regarded as universally ineffectual. In this group five patients were inoculated at least once and several twice with malaria without the malarial paroxysms ever developing. In thirteen others the patient had a malarial course. In nine of the thirteen there was no apparent change afterward; in one there was a temporary improvement which in a short time relapsed, and in the other three there seemed to be a fair degree of remission. Other means of treatment have been entirely unfruitful.

Presumably this fact can be explained if the brain is conceived of as having been so rapidly invaded and the damage so extensive that, even though relatively early in the disease, it is beyond the recuperating stage and the strongest therapeutic agents are ineffective.

SUMMARY

In this paper I have summarized in detail the symptoms and signs in juvenile dementia paralytica, stressing particularly the points of difference between it and dementia paralytica.

I take the position that juvenile dementia paralytica is the interaction of an immature, rapidly developing personality and a slowly progressing infection, with early distortion and later inhibition of development, and eventually breaking down of the complete biologic unit. Considered in this light, the various clinical pictures of juvenile dementia paralytica are interpreted and the differences between dementia paralytica in the child and in the adult are emphasized.

Special attention is called to the cases developing in feebleminded and often physically inferior children in whom the onset is often so insidious that it may be assumed to date from birth. I take issue with the "preparetic stage" theory, preferring to regard such asymptomatic cases as early dementia paralytica. Special consideration is given to infantilism occurring in patients with juvenile dementia paralytica including both the physical and the mental development, with particular emphasis on the mental picture.

3617 West Sixth Avenue.

ABSTRACT OF DISCUSSION

DR. HANS REESE, Madison, Wis.: Dr. Menninger's paper is a valuable contribution to the subject of juvenile dementia paralytica. There have been many articles on congenital syphilis but there has been no paper published recently which deals with juvenile dementia paralytica. It is not a new entity at all because in 1883 Diday of Paris reported the first relationship between dementia paralytica and congenital syphilis. Dr. Mabel G. Masten, who has reported on our experience at the University of Wisconsin, has found that among twenty children there were ten clear-cut cases of juvenile dementia paralytica, five cases of tabes, and three cases of taboparesis. In her group there was mental involvement in 68 per cent. The occurrence of juvenile dementia paralytica is not so rare. Careful examination of patients with congenital syphilis will reveal a mental deficiency similar but less pronounced than the mental status of acquired dementia paralytica. We do not depend on serologic manifestations alone but rely mostly on our clinical observations except in infants without neurologic signs. Endocrine or glandular dysfunctions have been present in all of our cases, which we attribute to an involvement of spirochetes of the endocrine

system and not to a germ plasm degeneration. This phase was clearly demonstrated by Zabriskie in 1923. As long as the morphology of the spirochetes is not known, one is not allowed to speak of the neurotrophic or dermotrophic strain. Miscarriages, premature births, stillbirths, defective children, healthy children can be explained better by the gradually decreased virulence of the spirochetes. The mental involvement of juvenile dementia paralytica has been so clearly presented by Dr. Menninger that it is not necessary to discuss further "moral insanity." I feel that the outcome in untreated cases is usually simple deterioration, later a muttering, repulsive creature or a pathetic idiot. In regard to treatment I am not so pessimistic as Dr. Menninger. I feel that one should start with tryparsamide and then submit some patients to malarial treatment followed by either tryparsamide or sulpharsphenamine. Calcium should be added to the therapeutic efforts in cases presenting convulsions, which may be due more often to disturbance in the calcium metabolism than to vascular phenomena. Our results with this suggested treatment have proved to be more beneficial than those of previous reports.

DR. H. W. WOLTMAN, Rochester, Minn.: Dr. Menninger stressed the prominence of meningovascular features in juvenile dementia paralytica. These as well as the diffuse, subcortical, parenchymatous changes, which may include the basal ganglions, and the frequent involvement of the cerebellum, may lead to the production of clinical pictures that are not always easily recognized as juvenile dementia paralytica. Few other diseases exhibit a combination of such extreme physical and mental dilapidation. I must confess that I have lost much of my assurance in making a diagnosis of dementia paralytica, particularly in adults, in the face of negative serologic evidence. As Dr. Menninger said, it can be done and it has been done correctly, but I have been unable to forget a victim of my diagnostic acumen who unobligingly dropped dead with tumor of the brain about three days after I had cast to the winds a negative serologic warning. If anything substantial is to be done in the treatment of juvenile dementia paralytica, the disease must be recognized earlier than is usually the case.

DR. PAUL A. O'LEARY, Rochester, Minn.: It is difficult for me to concede that the fact that 25 per cent of the congenital syphilitic children who had neurosyphilis were born of a neurosyphilitic parent is an argument in favor of the neurotropism of *Spirochaeta pallida*. On the other hand, the 75 per cent who did not show involvement of the nervous system, although born of neurosyphilitic parents, is a more forceful point in favor of the lack of specificity of the organism. My experience with acquired syphilis, and congenital syphilis also, has repeatedly impressed on me that the clinical evidence is heartily against the specificity of *Spirochaeta pallida* and strongly in favor of the conception that the course of the disease is the result of the type of the soil on which the organism grows. I share in the pessimism expressed with regard to the treatment of patients with congenital neurosyphilis, after having employed the majority of specific and nonspecific methods of treatment recommended for this disease. The results are much inferior to those noted in the acquired forms of parenchymatous neurosyphilis. As a syphilologist my interest lies in the prevention of juvenile dementia paralytica by the early recognition of nervous system involvement. Even though the incidence of neurosyphilis is only 10 per cent in congenital syphilis, the routine examination of the spinal fluid in all cases of the retarded type is warranted, because the treatment of asymptomatic neurosyphilis is highly successful. The neurologist seldom sees the syphilologist's success but only his failures in neurosyphilotherapy. The routine examination of the spinal fluids of these children is a paramount feature in their treatment and the guide to the prevention of juvenile dementia paralytica.

DR. W. C. MENNINGER, Topeka, Kan.: In my opinion, cases of juvenile dementia paralytica are probably fairly common but they occupy a rather unique place because these patients are usually too young to go to the state hospitals and they are often too psychotic to be accepted in institutions for the feebleminded. So one never knows where to look for them. I don't mean to imply in the paper that I support a neurotrophic strain of spirochetes. I mention it because so many of these cases do show neurosyphilis in the family history.

Clinical Notes, Suggestions and New Instruments

RUBBER FLASK CONNECTORS FOR HYPODERMOCLYSIS, INTRAVENOUS THERAPY AND OTHER USES

F. M. POTTENGER, JR., M.D., MONROVIA, CALIF.

Hypodermoclysis and intravenous therapy are at present administered by two general methods; namely, by means of the Kelly bottle and by the inverted flask as a reservoir with the necessary connections. Neither method gives complete satisfaction as used at present. Use of the Kelly bottle necessitates the transfer of sterile fluid from one container to another, offering an opportunity for contamination. To set up the inverted flask with the clamp and plate that are universally employed to maintain the stopper in position requires about five minutes. The metal connection corrodes under sterilization and use and the rubber ordinarily used soon deteriorates when subjected to repeated heat sterilizations.

In an effort to overcome these difficulties, two rubber connectors were developed. These connectors slip over the necks of flasks or bottles in the same manner as nursing nipples and are made in sizes to suit the various requirements. By using these, an ordinarily skilful nurse can complete a dozen hypodermoclysis outfits in the length of time required to set up a single plate and clamp.

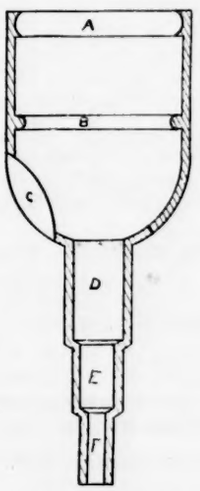

Fig. 1.—Cross-section of single-legged connector with the valve in the side wall: *A*, suction ring; *B*, guard to prevent connector from being pulled down too far; *C*, valve in side wall; *D*, three-eighths inch outlet; *E*, one-fourth inch outlet; *F*, one-eighth inch outlet.

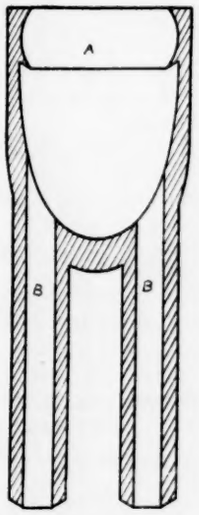

Fig. 2.—Cross-section of two-legged connector. *A*, suction ring; *B*, *B*, outlets.

A high grade, heat-resisting rubber is used in their manufacture. In addition to its chemical resisting qualities, this rubber has withstood without material damage thirty autoclavings at from 20 to 30 pounds pressure. A suction ring cast into the heavy rim provides additional security.

The first device is a single outlet connector with a valve for admitting air, as shown in figure 1.

Intravenous and hypodermoclysis therapy demand an air intake with a fluid outlet from a vessel into a circuit without the loss of fluid through the air inlet. This unit is made of rubber with a suction ring cast near the upper lip to insure a good hold on the neck of the flask or bottle. A second ring cast about an inch below the lip guards the connector from being forced down on the neck of the flask to a point at which the proper operation of the valve would be interfered with.

The outlet is made with three tapers so devised as to make it available for use with one-eighth inch, one-fourth inch and three-eighths inch or larger tubing. If one-eighth inch tubing is used, the connector may be used as it is. If one-fourth inch

tubing is used, the one-eighth inch connection is cut off, and for larger sizes both of the two smaller joints are removed.

The valve is placed in the side wall of the connector in such a position that no air bubbles will pass into the outlet tube even though the fluid is allowed to flow freely from the one-eighth inch outlet under a head of 6 feet of water. This is a rate of flow greatly in excess of any used in practice.

An important advantage of this valve lies in the fact that the attending nurse can tell at a glance, by observing the flow of air bubbles through the fluid, whether or not the apparatus is in operation.

The flask, solution and connector may be sterilized as a unit, thus eliminating changes of sterile fluid from one receptacle to another.

TWO-LEGGED CONNECTOR

In addition to the demand for a connector with a single outlet for hypodermoclysis and intravenous uses, there is considerable demand for a two-legged connector both in medicine and in chemistry. Such a connector is shown in figure 2.

This connector possesses the general advantages already described and the additional feature of a double outlet.

The upper portion of the connector contains a heavy suction ring for security under moderate pressures, which makes the connector so firm that the flask or rubber will break before the connector can be pushed off by internal pressure.

In intravenous therapy and hypodermoclysis when objection is raised to the passage of air bubbles through the fluid, the employment of this connector will obviate that objection. A glass tube can be inserted into one leg, or one leg may be manufactured so as to project inward to a point above the surface of the fluid.

This will serve admirably as an inexpensive suction apparatus by connecting a long tube to a floor bottle from one leg and by inserting a glass tube in the other which extends upward above the surface of the fluid.

Numerous other applications become immediately evident to the clinician.

These connectors were first used in the service of chest surgery at the Los Angeles County General Hospital.

URTICARIA AND HAY-FEVER DUE TO TRICHOPHYTIN (EPIDERMOPHYTON INTERDIGITALE)

FRED WISE, M.D., AND MARION B. SULZBERGER, M.D.
NEW YORK

Recently one of us[1] together with Phyllis Kerr reported a case of urticarial hypersensitiveness to trichophytin, in which the passive transference by means of the blood serum (method of Prausnitz-Küstner) proved successful. To our knowledge this was the first case of its kind reported, and we called attention to the fact that the discovery of this type of hypersensitiveness made it possible that trichophytin products of pathogenic fungi might be the cause of some asthmas and hay-fevers, as well as of urticarias. In view of the widespread prevalence of ringworm infections, particularly those of the feet, it would seem to us to be reasonable to consider the possibility of an ever-present allergen in the investigation of patients with these disorders.

Since our first report, Ramirez,[2] in further expansion of our experiments, has discovered and published the report of a case of asthma which could be traced to trichophytin.

The case reported here is the first to have come to our attention in which the products of ringworm fungi (pathogenic hyphomycetes) are shown to have been the causative agents of an attack of hay-fever, and possibly of a typical neurodermite.

It is therefore added to the list of possible allergic manifestations that may be attributed to the presence of ringworm infections; this list already includes eczematous reactions,[3] urticarial reactions[1] and asthma.[2]

1. Sulzberger, Marion B., and Kerr, Phyllis: Trichophytin Hypersensitiveness of Urticarial Type, J. Allergy, to be published.
2. Ramirez, M. A.: Trichophytin Sensitization, M. J. & Rec. **132**: 382 (Oct. 15) 1930.
3. Sulzberger, Marion B., and Lewis, G. M.: Trichophytin Hypersensitiveness Demonstrated by Contact Tests; Preliminary Report, Arch. Dermat. & Syph. **22**: 410 (Sept.) 1930.

REPORT OF CASE

Mrs. W. H. C., a research worker, aged 32, had suffered from skin eruptions since she was a year old. The family history was negative. In childhood the eruption had been of an acute vesicular and weeping character and affected principally the flexures. The dermatitis never disappeared entirely but was subject to improvement and exacerbations. In adult life the skin became more dry and scaly, accompanied by severe itching. Ointments, the roentgen ray and other therapy served only to alleviate the skin symptoms. In addition to the condition of the skin, the patient suffered occasionally from hives and had occasional attacks of asthma and mild hay-fever. None of these conditions were seasonal in occurrence.

Two years prior to our seeing the patient she had undergone a severe tinea of both feet and hands. This was diagnosed and treated by her sister, who is a physician. The treatment resulted in an apparent cure. There are no further historical data that require mention here.

On first examination the patient presented the appearance of a normal woman of her age, with the exception of the skin. A superficial examination revealed no other organic lesions.

Over the entire body the skin was unusually dry, with a slight tendency to scaling. Both cubital regions presented fairly sharply demarcated areas in which the skin was definitely thickened, hyperpigmented and lichenified. At the outer margins of these areas there were irregularly scattered, approximately bean-sized, scratched, lichenoid papules. The sides of the neck were grayish and slightly lichenified, and both they and the face presented a peculiar slaty, or bluish and brownish gray tint, so often observed in diffuse neurodermite. Infiltration and itching were present in all these areas. The scalp was dry and scaly, the face slightly reddened.

The palms and soles were normal in appearance. There were no clinical signs of ringworm of the feet.

The patient and her sister both stated that we were now seeing the skin condition at its best.

A diagnosis of typical generalized and circumscript neurodermite was made.

As it has been a matter of routine, in our office, to test all cases of allergic skin eruptions with trichophytin, and as the patient's history evidenced a previous severe tinea of the feet, an intradermal test with trichophytin was performed. The trichophytin employed was one that we had ourselves prepared from a fungus of the *Epidermophyton interdigitale* group. The manner of preparation followed the standard specifications of Bruno Bloch. While we had already employed this and other trichophytins in a large number (more than 100) different cases, in only one have we seen a reaction in any way, although not entirely, comparable to one which this patient presented.[1]

Immediately after the intradermal injection of 0.1 cm. of trichophytin in the patient's arm, the wheal began to grow. It became white, porcelain-like, presented pseudopods and increased to approximately ten times its original size. An angry red zone appeared around the test site. Within approximately five minutes the patient complained of itching in the nose, and then of generalized itching. Small pea-sized hives appeared scattered over various parts of the body, on the arms and chest. The eyes began to water and attacks of violent sneezing set in. The itching in the nose became worse and there was difficulty in breathing. The eyelids became red and swollen. As the attack had not abated at the end of fifteen minutes, 4 minims of 1 : 1,000 solution of epinephrine hydrochloride was given subcutaneously, and this produced almost immediate relief.

COMMENT

In view of this attack of hay-fever and hives due to trichophytin, the presence of the fungi in mycotic skin diseases must in future be considered as the possible cause of certain hay-fevers and urticarias.

In addition to the typical trichophytids which are known and described, the list of allergic manifestations that can be caused by ringworm fungi or their products can now be enlarged to comprehend eczematous dermatitis, urticaria, asthma and hay-fever.

While the possibility seems to exist that certain cases of neurodermite may have a similar etiology, the evidence here submitted is inconclusive in this particular direction.

200 West Fifty-Ninth Street.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, Secretary.

COD LIVER OIL (See New and Nonofficial Remedies, 1930, p. 255).

The following dosage form has been accepted:

Maltine with Cod Liver Oil and Iron Iodide: Maltine 70 per cent, cod liver oil 30 per cent, and ferrous iodide 0.88 Gm. (2 grains) to each fluid ounce. Maltine is a preparation essentially similar to extract of malt U. S. P., but it contains 3.88 per cent of alcohol and is prepared from malted barley, oats and wheat; as determined by a modification of the method of Chick and Roscoe (*Biochem. J.* **21**: 689, 1927), it contains one unit per gram (28 units per ounce) of vitamin B_1, one unit being the weight of the product necessary as the sole source of B_1 in an otherwise adequate diet to protect growing rats from polyneuritis and to assure normal growth; and ⅓ unit per gram (9 units per ounce) of vitamin B_2, one unit being the weight of the product necessary as the sole source of B_2 in an otherwise adequate diet to protect growing rats from pellagra and to assure normal growth; 1 Gm. converts 5 to 7 Gm. of starch to maltose and dextrin in thirty minutes at from 40 to 42 C. Maltine with cod liver oil and iron iodide contains in 100 cc. from 23,000 to 25,000 fat-soluble vitamin A units as determined by the U. S. Pharmacopeia assay and it has an antirachitic potency such that 0.02 Gm. fed daily to rachitic rats is sufficient to cause perceptible to distinct healing of rickets in from six to ten days as determined by the line test.

Manufactured by the Maltine Company, Brooklyn. No U. S. patent. U. S. trademark 44,566.

DIPHTHERIA TOXOID (See New and Nonofficial Remedies, 1930, p. 364).

Lederle Laboratories, Inc., Pearl River, New York.

Diphtheria Toxoid.—Prepared from diphtheria toxin of which the L+ dose is 0.2 cc. or less. The toxin is treated with formaldehyde at a temperature of 37 to 40 C. until the injection of five human doses into four 300 Gm. guinea-pigs will cause no signs of diphtheria poisoning. It is tested for antigenic power by injecting subcutaneously at least ten guinea-pigs weighing from 270 to 320 Gm. each with the initial human dose; at the end of six weeks each animal is injected subcutaneously with 5 M. L. D. of a stable diphtheria toxin; at least 80 per cent of the animals must survive for ten days. The finished product is adjusted to contain in 2 cc. enough of the toxoid for one immunization treatment. It is marketed in packages of one immunization treatment containing one 1 cc. vial of diluted toxoid for the reaction test and two 1 cc. vials of toxoid for treatment.

COMMITTEE ON FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COMMITTEE ON FOODS OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

RAYMOND HERTWIG, Secretary.

PET UNSWEETENED EVAPORATED MILK

Manufacturer.—Pet Milk Company, St. Louis.

Description.—An unsweetened evaporated milk complying with the U. S. Department of Agriculture definition and standard for evaporated milk.

Manufacture.—Fresh whole milk from healthy cows is obtained a few hours after milking. The sanitary conditions of collection, the handling, cooling and transportation of the milk are under strict supervision. It is tested for cleanness freshness and flavor before acceptance.

The milk is heated in jacketed hot wells to approximate boiling, then conveyed to partial-vacuum pans where from 50 to 60 per cent of the water is removed at from 120 to 130 F. The concentrated milk is homogenized by forcing through small apertures under a pressure of from 2,000 to 2,500 pounds. The fat globules are finely dispersed and later do not readily separate out. It is cooled to from 36 to 40 F., agitated in glass-lined tanks, and tested for fat and total solids. The fat and total solids must be not less than 7.8 and 25.5 per cent, respectively, and the sum of the fat and total solids not less than 33.7 per cent.

The tested milk is canned by injecting through small openings which are automatically sealed. The filled cans are inspected as to net weight, sealing and perfection of can. The sealed cans are processed in retorts at from 240 to 250 F. for twenty minutes, which accomplishes sterilization and favorably affects the viscosity. The cooled cans are stored for several days in a warm room. Any defective or improperly processed cans are discarded.

Composition.—

Total solids	25.5–26.5 per cent
Ash	1.5– 1.6 per cent
Protein (N × 6.38)	7.0– 8.2 per cent
Fat (ether extract)	7.8– 8.2 per cent
Lactose	9.5–10.0 per cent

Calories.—

1.36 per gram.
38.6 per ounce.
618. per pound.

Claims of Manufacturer.—Pet Evaporated Milk is uniform in fat and nonfat content and is sterile. The fat does not separate out. The homogenization makes this milk more readily digestible by babies and children than fresh or pasteurized milk because of softer, more flocculent curds formed in the stomach.

Pet Evaporated Milk may be used for cooking, baking and other purposes as is ordinary milk.

ALACTA

Manufacturer.—Mead Johnson and Company, Evansville, Ind.

Definition.—A dried, partially defatted milk designed for infant feeding formulas in which low fat content is desired.

Manufacture.—The milk is collected from tuberculin-tested cows under carefully supervised conditions. The fresh milk received each day is tested for bacteria, fat, odor, acidity and sediment, and stored in glass-enameled tanks at 50 F. The fat content is adjusted to 1.5 per cent, the modified milk is placed in a closed tank, the air is exhausted to a low pressure and the milk is heated to 230 F. for one and one-half minutes by steam under pressure. This is known as the Grindrod process. The heating occurs in the practical absence of air to minimize oxidation or destruction of the vitamins. The cooled milk is sprayed under high pressure into a current of cleaned, washed, heated air in a drying chamber. The milk solids fall to the bottom as a fine powder. The product is examined by the laboratory to determine whether it fulfils standard requirements and then packed in an atmosphere of nitrogen in hermetically sealed tins.

Composition (proximate analysis).—

	Per Cent
Moisture	1.5
Mineral salts	7.0
Milk-fat	12.0
Protein (N × 6.38)	33.0
Lactose	46.5

Calories.—

4.25 per gram.
121.0 per ounce.
1,936. per pound.

Claims of Manufacturer.—Alacta is a high grade dried milk with part of the milk-fat removed. It is for infant feeding as prescribed by the physician. Alacta contains no pathogenic bacteria. The bacterial counts are normally below 1,000 per gram.

The heating and drying processes effect a physical change which produces fine friable curds from diluted Alacta. The fat is in a finer globular condition than that in fresh or pasteurized milk. The salts apparently are not precipitated. The vitamins A and B (complex) remain practically unchanged, and vitamin C is only slightly affected.

Diluted Alacta may be employed in milk formulas in which a low milk-fat content is desired. Such feedings are sometimes well tolerated when less concentrated but higher fat feedings are not.

The Domain of the Pathologic.—We may say that the organism is healthy when it possesses the capacity to respond adequately to the influences of its surroundings; in a broad sense we may then also say that inadequacy of response indicates departure from health—a pathological state. Maladjustments of every sort will thus fall within the domain of the pathological. —Barker, L. F.: Porter Lectures, University Extension Division, Kansas City, 1930.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, NOVEMBER 15, 1930

SUPRARENAL FUNCTION

It has been eighty years since Addison [1] announced in London that a peculiar type of anemia associated with severe muscular weakness was related to a marked pathologic condition of the suprarenal glands. In an elaborate review of the accretions of knowledge in the intervening period regarding their possible functions and physiologic significance, Britton [2] of the University of Virginia has made the comment that even in these days of ultraspecialized—it might be called high-powered—physiology, three fourths of a century later, little definite information of suprarenal activity beyond that of the secretion of epinephrine by one part of the gland has been acquired. There have been many disappointments, numerous errors of experiment and interpretation, and several acrimonious debates regarding the claims of discovery, until the casual student began to wonder whether the suprarenals should be put in a category with the spleen or the appendix or the gall-bladder as structures of doubtful physiologic potency.

The suprarenals, however, exhibited a feature that early set them apart from the other organs of challenged importance. Suprarenalectomy is a fatal operation. Anorexia and other gastro-intestinal disturbances are early indications of oncoming dissolution; muscular weakness gradually develops and is followed frequently by convulsions, coma and death, usually within one or two days of the obvious appearance of sickness. At first the critics asserted that death following removal of the suprarenals might really be referable to injury of important structures during operation, and to shock and secondary infections. Britton rates it as perhaps one of the most baffling facts to experimental physiologists today that all common laboratory animals from which the suprarenal glands (and cortical accessory tissues when present) have been removed, whether by the single or by the two-stage operation, definitely die within a short period. The complete operation can be conducted with little trauma, in a comparatively short time—from ten to thirty minutes in the case of most animals—and the tissue loss per se is extremely small—roughly, one three thousandth of the body weight. The most skilful surgical technic, combined with optimal postoperative attention, he adds, has not lessened the 100 per cent mortality that follows, usually within a week or ten days, complete removal of the suprarenal tissues.

The discovery of epinephrine in the medullary portion of the suprarenal structures and the demonstration of its unique physiologic potencies aroused expectations of securing a real answer to the problem of suprarenal function. More than thirty-five years ago, Schäfer and Oliver of London observed the marked pressor action of extracts of the glands. The selective action of the potent principle on unstriped muscles and its relationship to the sympathetic nervous system are admitted today. A calorigenic function of epinephrine also is recognized. But the fact remains that ablation of the suprarenal medulla alone is not necessarily fatal and administration of medullary extracts will not avert the impending disaster after complete suprarenalectomy. Thus attention has become focused on the suprarenal cortex. The latest development, notably the work of Swingle and Pfiffner [3] at Princeton University, demonstrates that a cortical extract can be prepared that is able to preserve the life of suprarenalectomized animals apparently indefinitely. The Swingle-Pfiffner extract is being tested with some indications of its efficiency in addisonian cases.

The fact that, in contrast with the rôle of the cortico-suprarenal activity, the medullisuprarenal function is not indispensable to life should not be interpreted, as is continually being done, to mean that the medullary hormone is without real physiologic importance. It doubtless renders service in the stress as well as the routine of life. Several reviewers say that without question the medullisuprarenal mechanism along with the sympathetic system, dispensable in the protected conditions of ordinary laboratory life, typifies its great service to the organism at times of critical emergency, when it serves to adjust the pertinent visceral and somatic systems in the body to insure the optimal response to external exigencies. This has often been referred to in The Journal. Britton states in his conclusions that it has been overwhelmingly made clear that medullisuprarenal secretion is intimately and particularly concerned in adjusting and reinforcing bodily mechanisms in times of demand. That the chromaffin tissues can be spared without obviously endangering life yet with some detriment to the organism also appears well proved. Medullisuprarenal insufficiency possibly finds mitigation in the vicarious activity of the sympathetic nervous system. Nevertheless the whole sympathicomedullisuprarenal mechanism may be ablated

1. Addison, Thomas: London M. Gaz. **43**: 517, 1849.
2. Britton, S. W.: Adrenal Insufficiency and Related Considerations, Physiol. Rev. **10**: 617 (Oct.) 1930.
3. Swingle, W. W., and Pfiffner, J. J.: Science **71**: 321, 489; **72**: 75, 1930.

without fatal result. Addison's disease appears to be more particularly referable to corticosuprarenal deficiency. It has not yet been shown, however, that regressive changes in the medullary tissues do not play a part in the etiology of the disease.

EAT AND GROW FAT

In a recent issue of THE JOURNAL,[1] consideration was given to the failure of many persons, who undoubtedly consume food fuel in excess of their requirements, to deposit fat. According to Wilder [2] of the University of Chicago, obesity may not be just a matter of excessive eating. Some abnormality, possibly an inadequacy of the mechanism of luxus consumption, must be present to account for the inability to rid the body effectively of excesses of food. In any event there are enough persons in whom the balance between intake and output is favorable to accumulation of reserves to make the question of the management of obesity conspicuous. It might be expected from a biologic point of view that the body should include a protective or regulatory mechanism that would help to avert wide fluctuations in its adult size or weight. The stimulation of metabolism for this purpose, as Wilder intimated, might become an effective agency for averting obesity; it would not be an economic one. Far more probable is the assumption that our instincts so regulate the appetite that it becomes a dependable guide to proper food intake. Harrington [3] has pointed out that under strictly normal conditions the desire for food, that is, appetite, is such that the organism provides itself with materials in amounts that will keep its weight at the ideal level, but often the food intake is either excessive or insufficient to maintain the normal standard.

Everyday life affords examples of the perversion of appetites. Referring to the gastronomic field, Harrington remarked that it has become customary for the normal person to eat three meals a day, and the type of food which he eats is determined by his social and economic status. He gives little thought to the kind of food eaten and often does not remember the menu of the previous meal. However, suppose that a person decides to gain weight and so adds an extra slice of toast and some cereal to his morning meal until he has gained 15 pounds. After he has gained the desired weight, he continues to eat this amount because he has acquired the habit. If he omits these foods, he experiences a feeling of dissatisfaction and has the desire to eat more. It requires a conscious effort on his part to counteract this habit. Appetite and habit must be submerged by a stronger impulse, and the habit of overeating may be as hard to change as the alcoholic habit. Formation of a habit is a simple process, Harrington concludes, but changing the paths of transmission requires a strong impulse and a consciousness involving selection and control, or will.

Physicians frequently encounter situations in which the appetite may be inhibited by phobias to a degree that produces pathologic thinness. On the other hand, Harrington also emphasizes the observation that in obese persons the habit of overeating may be acquired as a means of entertainment, or as an outlet for the emotions. In the latter instance the will to lose weight must be developed before a distorted appetite can be suppressed. In other words, the interest in food expressed by certain types of emotional persons is often so great that some motive must be supplied to make them undertake a change in their food habits.

The clinician called on for corrective advice therefore must not merely consider the caloric aspect of his patient's nutrition but often also the personal peculiarities—the individual psychology—that have led to overeating. As Harrington has expressed it, the normal person may maintain a standard weight over a period of years if his living conditions remain constant and his nervous system remains stable. A decrease in activity, or an increased emotional stress, however, will produce a gain or loss in weight. Emotional stress may cause a loss of appetite, with a consequent loss in weight. The anorexia in the neurologic case can be cured by eliminating the inhibiting force and stimulating other interests strong enough to counteract this desire to avoid food, and the person can be made to gain weight.

In the Department of Internal Medicine at the University of Michigan, Harrington has studied the effects of various types of diet, including the "normal" regimen, a concentrated and a bulky type, on the body weight when the appetite was unrestrained. In the bulky diet the servings of concentrated foods were limited, and the remainder of the diet had to be selected from fruits and vegetables and other foods low in calories. It was adequate in minerals, vitamins and protein, and furnished one calory per gram of weight. In the concentrated diet the amount of low calory foods was limited, and only the usual amount of vegetables as given in the house diet were served. The total bulk of the diet was kept as low as that of the house diet, but the foods offered were highly concentrated. Cream and butter were used instead of milk, and dextrose and sucrose were used for sweetening in order to introduce more calories for a desired sweetness. The diet appeared the same as the normal diet but averaged 2.5 calories per gram of weight.

All the experimental persons lost weight on the bulky diets. This indicated a loss of body tissue which, however, was not sufficient to force them to take energy enough to maintain their weight when it would have been necessary to eat a mass of food far beyond the habitual volume. Thus the appetite may be thwarted when the customary modes of nutrition are significantly

1. Eat and Stay Thin, editorial, J. A. M. A. **95**: 1182 (Oct. 18) 1930.
2. Wilder, R. M.: The Management of Obesity, J. Am. Dietet. A. **6**: 91 (Sept.) 1930.
3. Harrington, Mary M.: Appetite in Relation to Weight, J. Am. Dietet. A. **6**: 101 (Sept.) 1930.

altered without imposed restrictions to eating. Harrington therefore believes that the desire alone for food may not cause the organism to take in as much energy as it uses when the diet is bulky. Appetite may cause an excessive intake of energy when the diet is concentrated. For these reasons, she adds, it is possible to regulate the weight of an individual without any knowledge on his part of the composition of the diet, and, at the same time, completely to satisfy his appetite.

It is important that the medical profession give more serious consideration to the many factors, dietary and psychologic, that the problems of obesity involve. The indifference of many physicians to the details of successful treatment has played into the hands of the quack and the impostor. Thyroid preparations are often used without medical consultation. Parsons [4] has recently pointed out to lay readers that such practice is highly dangerous in the absence of expert medical advice, for thyroxine exerts a stimulating action on the whole of the body metabolism: it does not merely encourage the combustion of fat but facilitates just as much the burning up of more useful and essential materials, such as tissue proteins, so that although an obese person may actually lose weight as a result of taking thyroid extract this loss may be due to removal of essential body constituents as much as to removal of excess fat that the body has stored. And further—seeing that obesity may arise as a result of a number of different causes apart from thyroid deficiency—the person who suffers from it may, and probably will, already possess a normally functioning thyroid, so that when he (or more usually she) takes more thyroid for reducing the fat the harmful effects of excess of thyroxine are liable to be produced. The management of obesity calls for medical intelligence.

THE THEORY OF DIABETES

With the important advances that have been made in recent years in the management of diabetes, during a period that has included the advent of insulin therapy, a growing uncertainty has developed regarding the real nature of the metabolic defects involved. The fundamental observations include the hypoglycemia and loss of sugar through the kidneys. The involvement of the pancreas in the pathogenesis of diabetes is also generally conceded. Beyond that, however, opinions differ greatly.

The majority of those who discuss the perversion of metabolism have concluded that the organism has lost its capacity to oxidize carbohydrates. A recent writer [4] has summarized the current belief by the statement that the loss of sugar is not in itself such a serious matter: it means that so much of the food is wasted, but the body can use other materials besides sugar as fuel in the tissues—fats can be so used, and so can any excess of protein that is eaten over and above the amount that is required for making good the wear and tear of the tissues. But it so happens, he adds, that the burning of fat and the burning of sugar in the body are processes that are not completely independent of each other. If a certain amount of sugar is not being burned in the body, fats cannot be burned completely either.

This is, briefly stated, the crux of the nonoxidation theory of diabetes. The engaging evidence in favor of it is reviewed in every textbook of physiology. There is, however, an alternative theory that has long been championed, especially in Europe. It ascribes the hyperglycemia and glycosuria that occur to an overproduction of dextrose from protein and fat. This overproduction, whose chief site is probably the liver, is great enough to cause the accumulation and excretion of excess sugar, in spite of the continued ability to oxidize it.

The production of sugar from protein in the person with diabetes is generally admitted. The "overproduction" theory of diabetes calls for the conversion of fat into carbohydrate. Striking evidence of such gluconeogenesis from fat has been presented by the Toronto school of physiologists, notably by Chaikoff and Weber.[5] They found that when epinephrine, which "mobilizes" sugar in the organism, is injected repeatedly into depancreatized animals from which insulin and food have been withheld, the excretion of dextrose in the urine may increase far beyond what can be accounted for from preformed carbohydrate, protein and glycerin. This result can be explained only in one way; namely, that the extra dextrose is derived from fatty acid. As to the manner in which epinephrine acts in stimulating the formation of sugar from fat, little that is definite is known; but the available evidence would seem to indicate that it does so indirectly by causing the liver glycogen to disappear.

The overproduction theory assumes at least partially if not wholly unimpaired capacity of the diabetic organism to oxidize carbohydrate. The studies of Soskin [6] at the University of Toronto have made highly questionable the commonly accepted evidence that the diabetic organism suffers complete impairment in its ability to oxidize carbohydrate. The data are technical and need not be reviewed here. However, if the demonstration that totally diabetic animals can oxidize carbohydrate is valid, it upsets the popular theory of the formation of ketone substances in diabetes. As Soskin remarks, it can no longer be assumed that failure of carbohydrate oxidation causes a disturbance in the utilization of fat, whereby the ketone bodies arise. In short, a more exact, if less picturesque, conception should be found than the one commonly quoted as "Fat burns in the fires of

4. Parsons, T. R.: The Materials of Life, New York, W. W. Norton & Co., 1930.

5. Chaikoff, I. L., and Weber, J. J.: The Formation of Sugar from Fatty Acids in the Depancreatized Dog Injected with Epinephrine, J. Biol. Chem. **76**: 813 (March) 1928.

6. Soskin, S.: The Utilization of Carbohydrate by Totally Depancreatized Dogs Receiving No Insulin, J. Nutrition **3**: 99 (Sept.) 1930.

carbohydrate." Soskin ventures the belief that, if the ketone substances familiar in diabetes may be regarded as intermediary products in the conversion of fat to carbohydrate, their accumulation in diabetes (like the accumulation of dextrose) is due to the excessive gluconeogenesis that characterizes this condition. Whatever the ultimate answer may be, the "overproduction" theory of diabetes can no longer be calmly disregarded in the interpretation of the complex problems involved. We suspect, however, that it will not long remain free from counterattack.

Current Comment

NATURE OF THE SUBSTANCE IN LIVER ACTIVE IN PERNICIOUS ANEMIA

It is scarcely more than four years since the announcement was made by Minot and Murphy [1] of Harvard University Medical School that, in cases of pernicious anemia, the feeding of liver produces an increased concentration of reticulocytes and mature erythrocytes in peripheral blood. The discovery has been widely heralded and has proved to be alike a boon to the therapeutist and a blessing to mankind. One can readily understand why the search for the "active principle" was prosecuted promptly and vigorously. The ingestion of the requisite large quantities of liver becomes extremely distasteful to most patients. The possibility that the potent substance, or perhaps one of the significant ingredients, might eventually be synthesized in the laboratory as epinephrine has been was an added stimulus to chemical research. Within a short time the evidence pointed against the probability that the active agent is either protein or lipoidal in nature. It was evidently devoid of sulphur or of iron.[2] Then came the isolation of an active crystalline salt by West and Howe,[3] to be followed promptly with the demonstration by Dakin, West and Howe [4] at the Medical Clinic of the Presbyterian Hospital, Columbia University, New York, that a substance clinically potent in pernicious anemia is a compound of beta-hydroxyglutamic acid and hydroxyproline. Both of these substances possess the characters of protein derivatives; the mode of their linkage remains to be ascertained. The unexpectedly simple nature of this highly potent liver substance is indeed surprising. The genius of the investigators in this sequence of contributions deserves a tribute from American medicine.

1. Minot, G. R., and Murphy, W. P.: Treatment of Pernicious Anemia by a Special Diet, J. A. M. A. **87**: 470 (Aug. 14) 1926; A Diet Rich in Liver in the Treatment of Pernicious Anemia, ibid. **89**: 759 (Sept. 3) 1927.

2. Cohn, E. J.; Minot, G. R.; Fulton, J. F.; Ulrichs, H. F.; Sargent, F. C.; Weare, J. H., and Murphy, W. P.: The Nature of the Material in Liver Effective in Pernicious Anemia, J. Biol. Chem. **74**: lxix (July) 1927. Cohn, E. J.; Minot, G. R.; Alles, G. A., and Salter, W. T.: Ibid. **77**: 325 (May) 1928. Cohn, E. J.; McMeekin, T. L., and Minot, G. R.: Am. J. Physiol. **90**: 316 (Oct.) 1929. Cohn, E. J.; McMeekin, T. L., and Minot, G. R.: J. Biol. Chem. **87**: xlix (June) 1930.

3. West, Randolph; and Howe, Marion: A Crystalline Derivative of an Acid Present in Liver, Active in Pernicious Anemia, J. Biol. Chem. **88**: 427 (Aug.) 1930.

4. Dakin, H. D.; West, Randolph; and Howe, Marion: Further Note on a Substance in Liver Active in Pernicious Anemia, Proc. Soc. Exper. Biol. & Med. **28**: 2 (Oct.) 1930.

HYDROPHAGOCYTOSIS

Those privileged to see the Lewis-Gregory [1] motion pictures of fertilized mammalian eggs, mammalian leukocytes and mammalian tissue cultures have seen dramatized many familiar deductions from histology. Two leukocytes racing and struggling for possession of a single food particle, with the cytologic reactions of victory and defeat; cytocannibalism with the elimination of a senile brother; rhythmic cycles of cellular activity and cellular sleep; and the ceremonious ballet of the chromosomes heralding the approach of nuclear division. Accompanying these expected phenomena, however, are numerous surprises, reactions unpostulated by conventional histology. A prominent example is the phenomenon of hydrophagocytosis, in which macrophages mechanically drink the surrounding plasma. The macrophages of the Lewis films are constantly forming and withdrawing winglike or sail-like pseudopodia. Two neighboring pseudopodial sheets meet and fuse at their outer edges, imprisoning a portion of the surrounding plasma. This captured plasma sample is drawn into the body of the macrophage, there fusing with other swallowed droplets to form a unit vacuole. This vacuole does not rupture but gradually loses its water content by protoplasmic absorption or diffusion, the less diffusible colloids remaining behind. The vacuole becomes more and more concentrated as it shrinks in size. Finally there remains but a small granule of semidesiccated colloids. This process can be followed in detail by addition of a nondiffusible dye to the tissue culture fluid. Physiologists will find in the Lewis phenomenon suggestion of a new mechanism of cellular nutrition and mechanical filtration or purification of body fluids. Immunologists will see in it confirmatory evidence of Metchnikoff's belief that the macrophages are the main place of disposal of soluble antigens, and the logical chief site of synthesis of specific antibodies.

Association News

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts at 10 a. m. on Monday, 10:15 on Tuesday, 10:30 on Thursday, and 10 on Saturday, over Station WBBM (770 kilocycles, or 389.4 meters).

The program for the week is as follows:

November 17. Diabetes: Its Treatment and Prevention.
November 18. The Early Diagnosis of Cancer.
November 20. Vincent's Infection (Trench Mouth): Its Control.
November 22. Philosophy for the Sick.

Five Minute Health Talks may be heard over the Columbia Broadcasting System daily except Sundays and holidays, from 12 to 12:05 p. m.

The program for the week is as follows:

November 17. Music in Medicine.
November 18. Music in Medicine.
November 19. The Sore Throat Danger Signal.
November 20. Tularemia.
November 21. Banishing the Blues.
November 22. Half Alive.

1. The Lewis-Gregory films may be purchased or rented through the Carnegie Institution, Washington, D. C.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Four Health Units to Be Established.—Dr. James N. Baker, Montgomery, state health officer, is reported to have recently announced that health units will soon be operating in Perry, Marion, Henry and Butler counties. With the addition of these units, only eleven counties will remain unorganized in the state. In the organization plan followed, a health unit requires a minimum expenditure by the county of about $3,500 a year, which amount is matched by the state.

CALIFORNIA

Mussel and Clam Quarantine Raised. — The quarantine order issued by the director of the department of public health, July 16, prohibiting the sale of clams and mussels along the coast from Monterey County to Del Norte County, was raised, October 1.

Personal.—At the annual meeting of the Board of Medical Examiners of the State of California, October 20, in Sacramento, Dr. Percy T. Phillips, Santa Cruz, was reelected president; Drs. William R. Molony, Los Angeles, and Charles B. Pinkham, San Francisco, were reelected vice president and secretary, respectively.

Society News. — Dr. Thomas Addis, San Francisco, addressed the Los Angeles County Medical Association, November 6, on "Prognosis in Bright's Disease."——The Los Angeles and San Francisco Orthopedic societies were addressed at a joint meeting, November 8, by Dr. Edward C. Bull, San Francisco, on "Some Observations on Bone Lengthening (Relative to Tibiae and Femora)."

Dr. Pepper Gives Scripps Clinic Lectures.—Dr. Oliver Hazard Perry Pepper, professor of clinical medicine, University of Pennsylvania School of Medicine, Philadelphia, will give the sixth annual Scripps Metabolic Clinic Lectures at La Jolla early in January, under the auspices of the Scripps Lectureship Endowment, to members of the San Diego County Medical Society. The meeting will be primarily in the form of lecture-clinics.

Harvard Fellowships for Medical Students.—The chairman of the Harvard Scholarship Committee of the San Francisco Harvard Club has called attention to the fact that two scholarships of $500 each, available every year for men of the University of California or Stanford University, are open to students of the medical school. Although these scholarships have been established for more than forty years, all the recipients have attended other departments of Harvard than the medical school. The committee will welcome the first application of this scholarship from prospective medical students.

"Dr." C. R. Jackson Arrested.—"Dr." Clyde R. Jackson was recently arrested in San Jose, it is reported, for passing worthless checks. He is reported to be the same individual who, in 1927, visited Ann Arbor, Mich., representing himself as a kidney specialist and stating that he intended to take special work at the university. He cashed worthless checks at two drug stores and left town (THE JOURNAL, Oct. 1, 1927, p. 1158; Oct. 8, 1927, p. 1257). According to the chief of police of San Jose, Jackson is wanted by the police in San Francisco, Berkeley, San Diego, Pomona and Compton for issuing fictitious checks.

COLORADO

Licenses Restored.—At a recent meeting of the Colorado State Board of Medical Examiners, the licenses to practice medicine of Drs. Floyd H. Weidlein, Palisade, and Frank F. Stivers, Kansas City, Mo., were restored. Dr. Weidlein's license was revoked in April, 1930, for making false representations in his application for a license to practice medicine in the state. Dr. Stivers' license was revoked in April, 1929, having been convicted of a felony in the district court of Logan County.

Society News.—The Pueblo County Medical Society was addressed, October 21, by Drs. Edward Delehanty on "Importance of the County Society in Organized Medicine" and Constantine F. Kemper, Denver, "Precision in the Treatment of Diseases of the Endocrine Glands"; Mr. Harvey T. Sethman, executive secretary of the state medical society, spoke on "Medical Defense and Liability Insurance."——The Boulder County Medical Society was addressed in October by Dr. Carbon Gillaspie on "Confinements in the Home."——Drs. Lewis H. McKinnie and William P. McCrossin, Jr., Colorado Springs, delivered papers on "Clinical Indications for Thoracoplasty" and "Clinical Indication for Open Operation on Empyema," respectively, before the El Paso County Medical Society, October 8.

Pediatric Department Organized.—At the last meeting of the board of regents of the University of Colorado, a department of pediatrics was organized in the school of medicine. Prior to this time, pediatrics was a division of the department of medicine. Dr. Franklin P. Gengenbach was promoted from the rank of associate professor of pediatrics to professor of pediatrics and head of the department. The following promotions and appointments to the faculty of the school of medicine are announced:

Dr. Alfred Hamlin Washburn, associate professor of pediatrics.
Dr. John William Amesse, assistant professor of pediatrics.
Drs. Roy Parsons Forbes, Emanuel Friedman and Louis Carl Wollenweber, instructors in pediatrics.
Dr. John Bramwell Davis, to associate professor of surgery (urology).
Dr. Henry Williams Wilcox, promoted to associate professor of surgery (orthopedics), and head of the division of orthopedics.
Dr. Charles E. Sevier, appointed professor of surgery (orthopedics).
Drs. Hamilton Ishan Barnard and Atha Thomas, appointed instructors in surgery (orthopedics).
Dr. Lyman Whidbee Mason, appointed instructor in obstetrics and gynecology.
Dr. William Cormack Black, Jr., transferred from the department of clinical pathology to the department of pathology as instructor.

DISTRICT OF COLUMBIA

Full Time Teachers at Georgetown. — The following changes and appointments at Georgetown University School of Medicine have been announced:

Dr. Wallace M. Yater, to whole-time professor of medicine.
Dr. Mario Mollari, to whole-time professor of bacteriology.
Dr. Jacob Markowitz, appointed whole-time professor of physiology.
George A. Bennett, A.B., appointed whole-time professor of histology and embryology.
Theodore Koppanyi, Ph.D., appointed whole-time professor of pharmacology.
Dr. Alexander B. Moore, appointed professor of roentgenology.
Dr. Harry S. Bernton, appointed professor of preventive medicine and hygiene.

ILLINOIS

Society News.—The annual meeting of the Tri-County Medical Society (Warren, Henry, Knox) was addressed at Galesburg, October 13, among others, by Drs. Rollo K. Packard, Chicago, on "Surgical Mortality and Morbidity," and Alexander A. Goldsmith, Chicago, on "Chronic Colitis."——The Quincy Physicians' Club was addressed, November 3, by Dr. Melinda C. K. Germann on "The Progress of Pediatrics"; the club will be addressed, November 17, by Dr. Clarence A. Wells on "Progress of Anesthesia."——Dr. Charles Spencer Williamson, Chicago, discussed "Research Work Along the Lines of Anemia, Especially Nutritional Anemias and Pericarditis" before the Will-Grundy County Medical Society, Joliet, November 5.——Dr. Noble Sproat Heaney, Chicago, spoke on endometriosis before the Peoria City Medical Society, October 21.

Chicago

Dedication of Medical Buildings.—The state department of public welfare and the College of Medicine of the University of Illinois dedicated four buildings, October 29. These buildings, the State Orthopedic Institute, the Institute for Juvenile Research, the Nurses' Home and the Research and Educational Hospital Service Building, are units of the Research and Educational Hospital operated by the University of Illinois. Addresses were given by Governor Emmerson, Harry Woodburn Chase, LL.D., president of the University of Illinois, and Rodney H. Brandon, director of the department of public welfare. After the dedication of these buildings, officials of the University of Illinois laid the cornerstone of their new $1,500,000 Medical and Dental Laboratory Building, at Polk and Lincoln streets. These laboratories are designed to accommodate 200 students in a class. The Research and Educational Hospital has a capacity of 450 beds.

Society News. — At the annual meeting of the Chicago Gynecological Society, October 17, Dr. Henry Schmitz was elected president, and Dr. Julius E. Lackner, secretary.——Dr. Aldred Scott Warthin, Ann Arbor, Mich., will deliver the eleventh annual Pasteur lecture before the Institute of Medicine of Chicago, November 21, on "Problems in Latent Syphilis."——A joint meeting of the Chicago Council of Medical Women and the Chicago Medical Society was addressed, October 29, by Drs. Mabel E. Gardner, Cincinnati, on "Mul-

tiple Small Peritoneal Cysts of the Fallopian Tubes," illustrated, and Susan R. Offutt, Rochester, Minn., "Chronic Cervicitis (Office Treatment)."——Drs. Lee W. Dean, St. Louis, and Walter R. Parker, Detroit, addressed a joint dinner meeting of the Chicago Ophthalmological Society and the Chicago Laryngological Society, in honor of the American Academy of Ophthalmology and Otolaryngology and the invited guest, Prof. Emil de Grosz; their subjects were "Relationship of Otolaryngology to Pediatrics" and "Uveitis with Trophic Changes," respectively.——The annual study class of the Chicago Heart Association held its first meeting, November 10; it will continue each succeeding Monday, including December 8; the subjects will include "The Child's Heart," "The Heart Beyond the Midpoint of Life" and "Care and Treatment of Cardiacs."

INDIANA

Society News.—The Fountain-Warren County Medical Society was addressed at Veedersburg, October 2, by Dr. Albert C. Holley, Attica, on "X-Ray Diagnosis of Colonic Flexures with Associate Contraction of Descending Colon and Pains Simulating Appendicitis."——Dr. Ernest Rupel, Indianapolis, addressed the Hendricks County Medical Society at Danville, October 17, on genito-urinary diseases.——"Head Injuries With and Without Skull Fracture" was the subject of Dr. Albert E. Sterne, Indianapolis, before the Wayne-Union County Medical Society at Richmond, October 16.——Dr. Foster J. Hudson, Indianapolis, addressed the Hamilton County Medical Society at Sheridan, October 14, on "Most Common Birth Injuries."——The Carroll County Medical Society was addressed at Camden, October 10, by Mr. Albert Stump, Indianapolis, attorney for the state medical association, on "Cause and Prevention of Malpractice Suits."——Dr. Roscoe H. Beeson, Muncie, addressed the Delaware-Blackford County Medical Society at Muncie, October 21, on state medicine.——The Tri-County Medical Society was addressed at North Vernon, October 15, by Dr. John H. Warvel, Indianapolis, on "Juvenile Diabetes."——The Indianapolis Medical Society was addressed, November 11, by Drs. Cleon A. Nafe on acute appendicitis and Louis H. Segar, "Mastoiditis with Lateral Sinus Thrombosis Without Otorrhea in a Two Months' Old Infant"; the society will conduct a symposium on five years' experience with the malaria treatment of neurosyphilis, November 18; Dr. Ursus V. Portmann, Cleveland, will address the society, November 25, on "Rôle of Radiation Therapy in Treatment of Benign Gynecologic Conditions."——The Muncie Academy of Medicine was addressed, October 14, by Dr. Willis D. Gatch, Indianapolis, on treatment of postoperative surgical emergencies.

MAINE

Society News.—Dr. Bryant E. Moulton, Boston, addressed the Cumberland County Medical Society, October 10, on "Psychiatric Aspect of Delinquency."——Dr. Thomas A. Devan, Rochester, N. Y., recently succeeded Dr. George H. Stone as superintendent of the Eastern Maine General Hospital, Bangor.

Experiment in Graduate Medical Education.—The officials of the Central Maine General Hospital, Lewiston, under the auspices of the Harvard Medical School Courses for Graduates, have announced a plan of graduate medical education for districts removed from large medical centers. The method is to conduct ten teaching clinics either monthly or bimonthly. One thousand dollars has been devoted to put the project into operation and Dr. Soma Weiss, assistant professor of medicine at Harvard Medical School, will head the service.

MASSACHUSETTS

Course in Heart Disease for Practitioners.—The New England Heart Association has planned a series of meetings for New England physicians to present the most approved and up-to-date views concerning heart disease, including various methods of cardiovascular examination. The series began, November 5, on "Auscultation of Heart Sounds." Other subjects to be presented include "Normal Blood Pressure," "Cardiovascular Roentgenology," "Electrocardiography," "Dyspnea," "Blood Flow," "Cardiac Pain" and "Edema." The meetings are scheduled for the afternoon, beginning at 4:30 of the first Wednesday of each month and will be held at the Boston Medical Library (Sprague Hall).

Society News.—The Essex North District Medical Society was addressed at a joint meeting with the Middlesex North and East and Essex South district medical societies, October 22, at the new Veterans' Bureau Hospital at Bedford; the speakers were Drs. Robert B. Greenough, Boston, president, state medical society; Charles E. Mongan, Somerville, "Trends in Medical Economics," and Winthrop Adams, Washington, D. C., "The Veterans' Bureau and the General Practitioner."——"Dermatomes in Man" was the subject of Dr. Otfried Foerster, professor of neurology, University of Breslau, before the Harvard Medical Society, Boston, October 14.——The William Harvey Society of Tufts Medical School, Boston, was addressed, November 14, by Dr. Howard W. Haggard, New Haven, Conn., on "Medicine Through the Ages."——Dr. David Cheever, Boston, lectured, November 12, on the care of the patient, at the Harvard University Medical School; Dr. David Riesman, Philadelphia, will talk on the same subject, November 19; Dr. William H. Robey, Boston, will deliver the George W. Gay lectures on medical ethics, December 3 and 10.——Dr. Harvey Cushing, Boston, addressed the Harvard Medical Society, Boston, October 28, on "Benign Fourth Ventricle Tumors of Childhood: A Review of Seventy-Eight Cases."

MICHIGAN

Personal.—Dr. Asher T. Childers, Cleveland, psychiatrist for Cuyahoga County Juvenile Court for the last two years, has been appointed chief of the psychiatric staff of the Children's Fund of Michigan.——Dr. George W. Westcott, Ypsilanti, and Mrs. Westcott sailed from New York, September 24, it is reported, for Belgian Congo, Africa, as medical missionaries.

Society News.—Dr. Louis H. Newburgh, Ann Arbor, addressed the Wayne County Medical Society, November 4, on "Value of the Insensible Loss of Weight in Clinical Medicine"; the society was addressed, November 11, by Col. Percy M. Ashburn, librarian of the Army Medical Library, War Department, Washington, D. C., on "Contributions to Medical Science Made by the Medical Department of the United States Army."——Dr. Don H. Duffie, Central Lake, addressed the Calhoun County Medical Society, November 4, on "Home Cure of Diabetes."——The second graduate clinical conference on communicable diseases of the Wayne County Medical Society was held, November 5, at the Herman Kiefer Hospital, Detroit. At this session the mechanical respirator originated by Dr. Cecil K. Drinker of Harvard University, Boston, was demonstrated; 214 physicians registered at the opening session, October 29.

MINNESOTA

Medical Journal Celebrates Sixtieth Anniversary.—The *Journal-Lancet* will celebrate its sixtieth anniversary, Jan 1, 1931. In honor of the occasion, it is planned to publish a Sixtieth Anniversary Volume and to send one to every physician and every hospital in the states of Wisconsin, Iowa, Minnesota, North and South Dakota and Montana. Among the subjects to be included in this special volume will be: History of Minnesota State Medical Society; History of the North and South Dakota State Medical Societies; Development of Tuberculosis Work in the Northwest; Development of Preventive Medicine; History of Individual County Medical Societies, and Reminiscences and Reprinted Papers.

Society News.—The Minnesota Academy of Medicine was addressed, November 12, by Drs. Alexander Stewart and William H. Hengstler, St. Paul, on "Observations on Serotherapy in Scarlet Fever" and "Neurologic Aspect of Head Injuries," respectively.——The twelfth annual meeting of the Association of Resident and Ex-Resident Physicians of the Mayo Clinic and Mayo Foundation held at Rochester, October 7-9, was addressed among others by Dr. Robert L. Sanders, Memphis, Tenn., on "The Art of Surgery." Symposiums were held on recent advances in anesthesia, allergic diseases and fractures and clinics were held at the various hospitals. Dr. James I. Scarborough, Little Rock, Ark., was elected president and Dr. Thomas J. Kinsella, Oak Terrace, Minn., secretary.

MISSOURI

Personal.—Dr. Eldon M. Findley, who has practiced in Graham for twelve years, was appointed instructor in physiology at the University of Missouri School of Medicine, September 14.——Dr. William W. Rambo, Jr., St. Louis, was appointed full-time physician and surgeon at the Missouri State Penitentiary, recently, succeeding Dr. Frank W. Gillham, Jefferson City.

University News.—The corner stone of the Edward Mallinckrodt Institute of Radiology of Washington University, St. Louis, was placed, October 2. The building is expected to be completed about January 1 at a cost of $500,000. Within the copper box placed in the corner stone was a picture of the late Edward Mallinckrodt, Sr., who left a bequest of $300,000 for the erection of the institute.

The Woman's Auxiliaries and Hygeia.—The woman's auxiliaries of several county medical societies have recently entered subscriptions to *Hygeia,* the Health Magazine. The auxiliary of the Buchanan County Medical Society entered 116 subscriptions; that of the Gentry County Medical Society, 75 subscriptions; the Lafayette County Medical Society, 83; Vernon-Cedar County Medical Society, 133, and the Jackson County Medical Society auxiliary, 83. Most of these subscriptions are to be sent to school teachers and various associations.

Dr. Abbott Goes to Stanford University.—Dr. LeRoy C. Abbott, St. Louis, chief surgeon at the Shriners' Hospital for Crippled Children, has resigned to accept a position as head of the department of orthopedics in Leland Stanford University School of Medicine, San Francisco. The resignation becomes effective, December 1; Dr. Clarence H. Crego, Jr., first assistant to Dr. Abbott, will be his temporary successor pending the making of a permanent appointment. Dr. Abbott has been chief surgeon at the hospital since it was opened in December, 1923, and since 1925 has been professor of clinical orthopedic surgery at Washington University Medical School, St. Louis.

Plan to Unify Eighty-Five Health Agencies.—Plans for coordinating the eighty-five health agencies in St. Louis under an advisory Health Council were recently presented before the St. Louis Medical Society. The preliminary organization work has been done under the auspices of the Community Council, financed by the Community Fund, but the Health Council is to be a separate group since about half of the health agencies are nonmembers of the fund. The function of the Health Council will be to eliminate the overlapping of health agencies working separately. It is said that the forty-two hospitals, eleven clinics and thirty-two other agencies devoted to the promotion of health in St. Louis and St. Louis County have no relation to one another and therefore spend considerable money and effort ineffectively.

Society News.—The Jasper County Medical Society was addressed, October 14, by Dr. George E. Knappenberger, Kansas City, on "Factors Concerned in the Curability of Peptic Ulcer."——Dr. George Leonard Harrington, Kansas City, addressed the Nodaway County Medical Society, September 12, on "Psychology in Medicine, with Especial Attention to the Neuroses."——"Some Occasional Untoward Effects of Treatment of Syphilis by Arsenic with Special Reference to Skin Exfoliation" was the subject of Dr. Stephen T. Ragan, Moberly, before the Randolph-Monroe County Medical Society recently.——Dr. Charles A. Elliott, Chicago, addressed the Jackson County Medical Society, November 11, on "The Management of Edema"; Mr. Paul Lukenbach of the scientific staff, General Electric Company, spoke on "Newer Developments in Physiotherapy, Diathermy and X-Ray."

NEBRASKA

Society News.—The Fifth District Medical Association was addressed, November 6, at Oakland, among others, by Drs. Clyde A. Roeder, Omaha, "A New Structural Classification of Goiter," and William L. Shearer, Omaha, "Surgery of the Jaws"; after-dinner speakers were Drs. Charles W. M. Poynter, Omaha, "The University Hospital," and Philip H. Bartholomew, Lincoln, "Responsibility of the Medical Profession in the Management of Communicable Diseases."

NEW YORK

Hospital News.—A new $800,000 wing to St. John's Hospital, Yonkers, was recently opened. It has a capacity of 150 beds and doubles the number contained in the old building, which will be reconstructed and made into an administration building.

Another Child Guidance Clinic.—The National Committee for Mental Hygiene opened, September 1, the Child Guidance Clinic of Niagara Falls after two years of preparation, which included definite advances in local social work, recreation, probation service and education. This is the first full-time clinic in a community of between 50,000 and 100,000 people. It is financed for a period of ten years through the Martha H. Beeman Foundation and is headed by Dr. William G. Ferguson. An effort will be made to establish cooperation between the clinic and the University of Buffalo Medical School.

Society News.—The Fifth District Medical Society was addressed at its twenty-fourth annual meeting, in Little Falls, September 30, among others by Dr. John E. Sutton, Jr., New York, on "Treatment of Varicose Veins."——Dr. Charles Gordon Heyd, New York, addressed the Eighth District Medical Society, October 2, in Perrysburg on "Salient Features of Surgical Diagnosis in Conditions of the Abdomen," and Dr. William T. Shanahan, Sonyea, "Epilepsies—Etiology and Diagnosis."——"The County Health Unit and the Need of Hospital Facilities for the County" was the subject of Dr. Thomas Parran, Jr., state health commissioner, before the Greene County Medical Society, October 7, at Cairo.——The Clinton County Medical Society was addressed at Plattsburg, October 14, by Drs. Arthur Krida, New York, and Anton S. Schneider, Plattsburg, on "Surgery of the Knee Joint" and "Phlyctenular Disease in General Practice," respectively.——Clifford W. Beers gave a brief review of his book "A Mind That Found Itself" before the Rockland County Medical Society at Letchworth Village, September 24.——Drs. Edgar A. Vander Veer and Homer L. Nelms, Albany, gave an illustrated lecture on "Nervous Indigestion," October 14, before the Schoharie County Medical Society, and Dr. David W. Beard, Cobleskill, presented a series of three films on "Injuries of the Hand."

New York City

The Second Harvey Lecture.—Karl S. Lashley, Ph.D., Chicago, will deliver the second Harvey Society Lecture at the New York Academy of Medicine, November 20, on "Mass Action and Localization of Functions in the Cerebral Cortex."

Hospital News.—New York Skin and Cancer Hospital has been given a gram of radium in soluble form by an anonymous donor and a special cancer clinic has been opened. With removal of the institution to its future quarters, in the recently purchased Lying-In Hospital, an emanation plant will be installed for which the same donor will make an annual gift of an additional gram of radium for three successive years.

Society News.—The German Medical Association was addressed, November 3, by Drs. Otfried Foerster, Breslau, Germany, on "Palliative Operations of Nervous Diseases," and Charles A. Elsberg, "Modern Brain and Spinal Surgery."——The clinical aspects and management of cardiac neuroses was discussed by Drs. H. Mond and Lewis A. Conner, respectively, before the November 5 meeting of the Harlem Medical Association.——The program for December of the fifth series of Friday afternoon lectures at the New York Academy of Medicine on subjects of special interest to the practitioner will be as follows: Dr. Nellis B. Foster, "The Thyroid"; Dr. Alfred F. Hess, "Therapeutics of Ultraviolet Light," and Miss Frances Perkins, state industrial commissioner, Albany, "Occupational and Industrial Diseases."——Dr. Angelo L. Soresi addressed the Bronx County Medical Society, November 5, on "New Views on Pathogenesis, Diagnosis and Treatment of Ulcer and Cancer of the Stomach, Cholelithiasis and Diseases of the Digestive Organs in General."——The New York City Physicians' Golfing Association held the last tournament of the season at the Oakland Golf Club, October 23. Dr. Harry M. Imboden won the first prize.

First Health Center Opened.—The first of sixteen health centers to be established by the department of health was recently opened in Harlem. At present the center offers prenatal, preschool and dental clinics and a baby health station. Other services soon to be operated will include medical guidance, a tuberculosis diagnostic clinic with roentgen laboratory, and general laboratory facilities for private physicians of the neighborhood. A service will be offered for the examination of tuberculosis contracts, and a venereal clinic will also be maintained. The center houses also the Harlem Tuberculosis and Health Committee, the district offices of the bureau of nursing, the Henry Street Visiting Nurse Association and the Speedwell Society. The health department schedule calls for four neighborhood health centers to be opened each year in districts that show the greatest need for intensive public health work. For the establishment of the first four units of the sixteen health centers to be built within the next four years, the city has allotted $1,000,000. Each unit is to cost $250,000 and one of these will be built each year until every health district in the city, arbitrarily divided into blocks of from 50,000 to 100,000, will have a complete health service available not only to the public but to physicians as well. By this unit decentralization of public health service, each section of the city will have the full services of the health department as well as those of various private medicosociological and welfare bodies.

OHIO

Conference of Health Officers.—The eleventh annual conference of health commissioners with the Ohio Department of Health will be held at the Neil House, Columbus, November 18-21. During the same week a maternity institute will be held for public health nurses, and on the 20th and 21st the Ohio Society of Sanitarians will meet. Among the speakers at the conference of health commissioners will be a discussion of Ohio's recent survey of tourists' lodging houses by

Dr. Walter J. Smith, medical inspector of the state health department, and Charles S. Slade, sanitary engineer, state health department; heart disease and its control measures by Dr. Irl C. Riggin, New York, formerly health commissioner of Lorain County. Dr. Harvey J. Powell, Bowling Green, will outline "Medical Science as the Greatest Factor in Civilization," and undulant fever will be discussed by Dr. Walter M. Simpson, Dayton. There are 162 health commissioners in Ohio representing 178 organized districts. The maternity institute will feature a discussion of the maternity situation, prenatal care, a review of delivery and postpartum care and a discussion of mothers' classes, with demonstrations and exhibits.

Status of Poliomyelitis.—The *Ohio Health News*, October 1, states that the incidence of poliomyelitis was at that time increasing so rapidly that the state department of health sent out an admonitory bulletin to all health commissioners urging them and the medical profession to exercise the utmost vigilance in the detection of cases and precaution to prevent the spread of the disease. The poliomyelitis outbreak began its upward trend in July with thirty-seven cases. In August there were 100 reported cases, which followed a diagonal line across the state from Cincinnati to Cleveland. In September, 305 cases were reported and the October 15 *Ohio Health News* reported only 141 cases for October, which totals 583 cases thus far this year. The bulletin emphasizes a more general distribution of the disease in rural than in urban territory. It points out that contact with either case or carrier was the only method of spreading found in the investigation of more than 1,000 cases in 1927 and emphasizes the fact that definitely paralyzed patients are not the most dangerous to the community, because, being easily recognized, they are usually promptly quarantined and properly cared for.

Society News.—Dr. George E. Rockwell, Cincinnati, addressed the Clermont County Medical Society, October 15, at Marathon, on "Allergy and Its Significance to the General Practitioner."——The Butler County Medical Society was addressed, October 8, at Middletown by Drs. Mabel E. Gardner and Harold F. Downing, Cincinnati, on "Pubiotomy" and "Early Symptoms and Diagnosis of Acute Infantile Paralysis," respectively.——A joint meeting of the Toledo Academy of Medicine and the Clinical Orthopedic Society was addressed, October 31, by Dr. George W. Hawley, Bridgeport, Conn., on "Newer Apparatus in the Treatment of Fractures of the Femur."——Dr. Charles W. Stone, Cleveland, addressed the Mahoning County Medical Society, September 30, at Youngstown, on "Mental Disturbances Seen in General Practice."——Among others, Dr. Loyal E. Leavenworth, Canton, addressed the Stark County Medical Society on "Sterility and Its Treatment."——The twenty-fourth Hanna Lecture of Western Reserve University, Cleveland, was delivered at the Institute of Pathology, October 31, by Prof. M. Weinberg of the Pasteur Institute, Paris, on "Rôle Played by the Anaerobes in the Etiology, Pathogenesis and Evolution of Infectious Diseases."——The Summit County Medical Society, Akron, was addressed, November 4, by Dr. Albert Kuntz, St. Louis, on "Anatomical Basis of Sympathectomy."——Dr. Jacob P. Greenhill, Chicago, addressed the Columbus Academy of Medicine, October 13, on "Forceps Deliveries."

PENNSYLVANIA

Society News.—The Bucks County Medical Society was addressed, November 12, at Doylestown, by Dr. William Bates, Philadelphia, on "Diagnosis of Diseases of the Colon."——Dr. William Wayne Babcock, Philadelphia, delivered an address on "The Romance of Anesthesia" before the Northumberland County Medical Society, November 5, at Shamokin.——The Medical Forum will have as its guest speaker Dr. Isidore W. Held, New York, November 15; his subject will be "Modern Aspects of Jaundice and Its Application to Diagnosis."

Philadelphia

The Mutter Lecture.—It has been announced that the annual Mutter lecture for 1930 of the College of Physicians of Philadelphia will be delivered in Mitchell Hall, College of Physicians, by Dr. Frank H. Lahey, Boston, December 3, on "Management of Goiter and Hyperthyroidism."

Personal.—Dr. Harold F. Robertson has been appointed associate professor of medicine at Temple University School of Medicine. Dr. Robertson, who is a graduate of the University of Pennsylvania, is medical consultant for Dr. Chevalier Jackson and is connected with several local hospitals.

Court Rules Naturopaths Cannot Confer Degrees.—The Pennsylvania Society of Naturopaths, Philadelphia, was excluded from the privilege and right to confer degrees in an opinion recently handed down in Dauphin County Court. The decree forbid the society and its naturopathic college from granting degrees of doctor of naturopathy, doctor of natural philosophy or the honorary degree of doctor of natural philosophy.

Hospital News.—An artificial respirator will be installed in each of the following ten hospitals: Philadelphia General, Jefferson, St. Agnes', University, Episcopal and Germantown hospitals, all of Philadelphia; Chester Hospital, Chester; Montgomery, Norristown; Abington (Pa.) Hospital and Bryn Mawr (Pa.) Hospital. The respirators were obtained through the cooperation of the Philadelphia Electric Company and the United Gas Improvement Company.

County Society and Graduate Teaching.—Two foundations have been established under the control of the Philadelphia County Medical Society to give impetus to graduate teaching. The Dr. Mary Fisher Foundation, established in 1928, held its first annual ophthalmologic lecture, November 12. The Da Costa Foundation plans its first meeting for the season of 1930-1931. Dr. William W. Keen added $500 to the fund recently.

University News.—A series of postgraduate lectures was given by the University of Pennsylvania Graduate School of Medicine: the speaker, October 27, was Dr. John A. Kolmer on "Pathogenesis of Infection or the Agencies by Which Parasites Produce Disease"; October 27, Dr. George E. Pfahler, "General Principles of X-Ray Therapy"; October 31, Dr. Edward Lodholz, "Physiological Basis of Personality," and October 31, Dr. Kolmer, "The Nature and Pathogenesis of Bacterial Toxins."

Society News.—The Philadelphia County Medical Society was addressed, November 12, by Drs. Charles R. Heed on "The Conservation of Vision from an Industrial Standpoint"; J. Milton Griscom, "The Eyes of Your Children," and William Zentmayer, "Importance of Ocular Examinations After the Fourth Decade of Life."——Among others, Dr. F. G. Harrison addressed the Philadelphia Urological Society, October 27, on "Philadelphia's Contribution to Urology."——The Medico-Legal Society of Philadelphia was addressed, October 28, by Dr. Alfred Gordon on "Morbid Impulse, Criminal Act and Mental Responsibility."——Drs. Isaac Andrussier and Charles Mazer addressed the Obstetrical Society of Philadelphia, November 6, on "Incidence, Diagnosis and Treatment of Functional Sterility"; Joseph V. Klauder and Herman Brown, "Study of the Calcium-Phosphorus Ratio in the Serum of Syphilitic Pregnant Women," and Thaddeus L. Montgomery, "The Etiology and the Significance of Necrosis (Infarction) of the Placenta: A Biologic and Histologic Study."

RHODE ISLAND

Society News.—The Providence Medical Association was addressed, November 3, by Drs. Raymond F. Hacking on "Perimetry and Its Relation to Some Intracranial Lesions," and Harry C. Messinger, "The Pituitary and Some Features of Tumors in the Pituitary Region." The association was addressed, October 6, by Drs. Emanuel W. Benjamin and William Louis Chapman on "Intravenous Urography" and "The Decadent Anatomy of the Colon," respectively.

SOUTH DAKOTA

Society News.—North and South Dakota will hold a joint annual session at Aberdeen, S. D., June 2-4, 1931. This will be a celebration of the fiftieth annual session of organized medicine in the territory of Dakota from which the two states were organized.

VIRGINIA

State Medical Election.—At the annual meeting of the Medical Society of Virginia, October 22, Dr. James Allison Hodges, Richmond, was installed as president; Dr. Isaac C. Harrison, Danville, was made president-elect, and Miss Agnes V. Edwards, Richmond, was reelected secretary. The next annual session will be held at Roanoke.

WISCONSIN

Society News.—The University of Wisconsin Medical Society was addressed, November 14, by Dr. M. Weinberg of the Pasteur Institute, Paris, France, on "Serum Therapy in Diseases Due to Pathogenic Anaerobes."——The Medical Society of Milwaukee County was addressed, November 14, by Drs. Eleanore Cushing-Lippitt and Charles L. Scudder, Boston, on "The Health of Working Children" and "The Indications for the Treatment of Fractures by Operation," respectively. Dr. Scudder conducted a clinic at the new county hospital.

CANADA

Grenfell Hospital in Labrador Burns.—A recent newspaper dispatch stated that the Grenfell Hospital at Battle Harbor, Newfoundland, was destroyed by fire, November 3. It was built in 1892 and had a capacity of thirty beds. This was the first one built in Labrador by Sir Wilfred Grenfell and the principal unit in a chain of institutions 150 miles apart. The hospital was unoccupied at the time of burning, as the mission had moved during October into winter quarters farther inland.

GENERAL

Study of Former Yellow Fever Patients.—The International Health Board is endeavoring through the state boards of health to get in touch with persons who had yellow fever forty or more years ago. It wishes to secure blood to use in investigations to prove whether immunity from yellow fever was permanently established in those suffering from it.

Did You Return the Card?—For months a large force of clerks have been revising and bringing up to date data preparatory to publishing the new Twelfth Edition of the American Medical Directory. Every physician who has failed to return his card requesting directory information is urged to do so at once regardless of whether or not a change has occurred in the information requested.

Birth Rate Lowest in Fifteen Years.—The census bureau recently reported that the American birth rate for 1929, 18.9 per hundred thousand of population, was the lowest since 1915, when such statistics were first compiled on a national scale. The infant mortality rate also dropped to the lowest point on record, sixty-eight deaths of infants under 1 year of age for each 1,000 born. In 1916 and 1918 the records showed that the mortality rate was 101 per thousand deaths.

American Board of Otolaryngology.—An examination was held by the American Board of Otolaryngology, October 27, during the session of the American Academy of Ophthalmology and Otolaryngology. One hundred and eleven candidates were examined, of which eighteen were either conditioned or failed. The board will hold an examination in Los Angeles in the spring, preceding the meeting of the Pacific Coast Oto-Ophthalmological Society, and in Philadelphia at the time of the meeting of the American Medical Association in June. An examination will also be given in the fall, at Indianapolis, preceding the meeting of the American Academy of Ophthalmology and Otolaryngology at French Lick Springs. Prospective applicants for a certificate should address the secretary, Dr. William P. Wherry, 1500 Medical Arts Building, Omaha, for proper application blanks.

Ban on Importation of Parrots Lifted.—The ban on the importation of parrots into the United States, which became effective last January during the psittacosis outbreak was lifted by the U. S. Public Health Service, October 30. Parrots may now be brought in through ports where quarantine officers are stationed, subject to certain regulations of shipping, detention and inspection. Shipments are limited to 100 birds each. No more than ten birds may be shipped in a crate of specified size and constructed with special provision for ventilation and cleansing. All parrot shipments will be detained for fifteen days so that their health may be observed by the quarantine inspector. An individual returning from the tropics or elsewhere abroad may bring in as many as five privately owned parrots without having them held for the fifteen day inspection period. However, these birds must have been kept in a good sanitary environment away from contact with other parrots for at least sixty days preceding entry to this country.

Society News.—At the thirty-fifth annual meeting of the American Academy of Ophthalmology and Otolaryngology, Chicago, October 27-31, Dr. John F. Barnhill, Indianapolis, was installed as president; Dr. Samuel Hanford McKee, Montreal, Que., was made president-elect, and Dr. William P. Wherry, Omaha, executive secretary, reelected. The next annual meeting of the academy will be held in French Lick, Ind., in 1931. Prof. Emile de Grosz, Budapest, Hungary, was elected an honorary member of the academy.——The National Society for the Prevention of Blindness will hold its annual conference in New York City with headquarters in the Russell Sage Building, 130 East Twenty-Second Street, November 17-18, in cooperation with the National Organization for Public Health Nursing, New York State Department of Education, New York City Department of Health and Sight-Saving Class Supervisors and Teachers. Included in the program will be conferences on the relation of lighting to vision conservation and medical social service in conservation of vision; conservation of vision in school children and sight-saving class activities in America. Dr. George S. Derby, Boston, will address the meeting on "Conservation of Eyesight with Especial Reference to Glaucoma."

White House Conference on Child Health.—The White House Conference on Child Health and Protection will be held in Washington, D. C., November 19-22, to consider studies made by its staff of more than 1,200 experts during the last year. President Hoover will address the conference at its opening session and his message will be broadcast over a national hookup to previously arranged groups of interested men and women throughout the country. Reports of the technical work of the committee will be divided into four major sections in charge of Dr. Samuel McC. Hamill, medical service; Surg. Gen. Hugh S. Cumming, public health service and administration; F. J. Kelly, Ph.D., education and training, and C. C. Carstens, Ph.D., the handicapped; prevention, maintenance, protection. Arrangements have been made for the various committees to perfect their reports at breakfast and luncheons. The conference is made up of delegates invited by the President, appointees of the governors of the several states and selections made by committee chairmen. The general session will be addressed, November 20, by Hon. James J. Davis on "The National Economy of Child Health and Protection," and the public meeting, Friday evening with radio broadcast, by Dr. Ray Lyman Wilbur, "A Survey and a Challenge"; at 12:45 p. m. Saturday, he will summarize the conclusions and recommendations of the conference in an address which will be broadcast over the National Farm and Home Hour hookup. The White House Conference on Child Health and Protection was called by President Hoover as an extragovernmental function. In addition to the integration of existing information, the committee has carried out several interesting pieces of original investigation, among which is the family interview survey conducted by the Committee on Medical Care for Children with the cooperation of the department of agriculture. The general committee's work has been financed by special grants from private sources supplemented by special grants from foundations and associations having a particular interest in the conference studies.

FOREIGN

Indian Government Accepts Rockefeller Gift.—The government of India has accepted the offer of the Rockefeller Foundation to build and equip an All-India Institute of Hygiene in Calcutta. Lieut. Col. A. D. Stewart has been appointed director-designate, a site is being acquired and all provisional plans have been made. The institute will afford opportunity for research and teaching in problems of public health with special reference to Indian conditions and will cooperate with the present Calcutta School of Tropical Medicine and the affiliated Pasteur Institute, the Carmichael Hospital for Tropical Diseases and the Leonard Rogers Laboratories. The latter has a special staff working on leprosy, kala-azar, hookworm, intestinal diseases and filariasis. The Calcutta school published more than eighty technical papers on tropical problems last year.

Health of Aviators.—The figures relating to sickness and death in the Royal Air Force during 1929 were slightly higher than during 1928. The annual report states that 83.3 per cent of the total sickness was associated with disease, and 16.7 per cent with injury. The increase in the disease rate was due to increase in influenza and tonsillitis at home and malaria abroad. The rate of venereal disease, 15 per thousand, is the lowest yet recorded. A slight increase in the invalid rate was due to cases of the enteric group sent back from Iraq. An increase in invalid cases was noted for tuberculosis, valvular heart disease, chronic suppurative otitis media and mental diseases, and a decrease was noted on account of the psychoneuroses, defective vision and fractures. During the year seventy-two deaths from injury compared with ninety-seven deaths in 1928 were noted, and there were thirty-three deaths from disease compared to forty in 1928. The investigations of effects of fast flying and intensive aerobatics showed that no special physical examination was necessary and that the rotation test to ascertain suitability of the applicant was as precise as the specially designed whirling arm used in the Central Medical Establishment. The dimming or "blacking out" of the aviator's eyes occurring when steeply banking at high speed and reported to be due to a withdrawal of blood from the eye itself does not incapacitate the individual from managing aircraft but should be taken by pilots as a warning not to increase these effects by turning farther.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Oct. 25, 1930.

The Distribution of Population

At the centenary of the Royal Geographical Society, now being celebrated in London, Mr. A. M. Carr-Saunders, professor of social science at Liverpool University, discussed several aspects of the distribution of population. He pointed out that in certain regions, such as the East Indies, the population was sparse, though the natural resources were considerable, because the skill of the inhabitants was low. With increased skill a much larger population could be accommodated. In the so-called new countries, where the aboriginal populations had been pushed aside, there were also possibilities of absorbing surplus population. In Europe almost alone was there pressure of such a nature as to make likely outward movements supported by force, if it was not otherwise eased. Sufficient notice had not been taken of the declining birth rate of Europe. In all the countries of northern and western Europe the situation was such that if the fertility and mortality rates now prevailing were stabilized at their present levels, the population would before many years begin to decline. There was no longer a replacement birth rate, and, while mortality rates rapidly decreased, the birth rate continued to fall. In southern and eastern Europe the position had not been examined with the same care, but the tendencies were in the same direction, except in Russia and one or two small Baltic states. Outside these areas the problem of disposing of the surplus and relieving pressure in Europe was therefore limited in amount and in time. The new countries were experiencing a similar fall in birth rate. The United States had now only a replacement birth rate. It seemed that the new countries were not going to fill up by the natural increase of their inhabitants and that they could take immigrants from Europe to an extent that would go far to relieve such pressure as existed, though it was by no means certain that they would be willing. Hence the importance of the immigration laws at the present time, since they might block the most promising outlets for the relief of pressure. If international understandings could be reached on migration the future of the white races was bright, so far as that was concerned. The same could not be said of the non-European races that were not controlling their birth rates. These had serious overpopulation in large areas, but that did not constitute a world danger because the pressure led not to movements with force behind them but to internal weakness. The effect was disastrous to those who suffered from it, but it affected the rest of the world only indirectly.

London's Lowest Birth Rate

The lowest birth rate ever recorded in London is announced by the health officer, Dr. F. N. Kay Menzies, for the year 1929. Births in that year numbered 70,089, or 15.8 per thousand of population, against 16.2 in 1928. The number was actually fewer by 887 than in 1918, when the influence of the Great War was at its height. It is estimated that the population of the official "County of London" has decreased from 5,524,000 at the time of the last census in 1921, by 94,000, to 4,430,000 in the middle of 1929. Deaths in the civil population during the year under review numbered 62,889, or 14.2 per thousand, against 12.1 of the previous year. This increase was due to the influenza epidemic, associated with an unusually rigorous winter, and in addition to the prevalence of whooping cough. Fatal street accidents increased from 747 in 1928 to 814. The report states that there are about 30,000 basement dwellings in London, housing about 100,000 persons, which are not fit for human habitation. It will be noted that the fall in the population of the "County of London," amounting to 2,263, is not due to excess of deaths over births. It is largely due to migration to the outlying parts of "greater London," which still continues to grow.

The Sterilization of Mental Defectives

The sterilization of mental defectives has been a topic of controversy for some time in this country. In a letter to the *Lancet*, Drs. Langdon-Down, J. A. Ryle and C. P. Blacker advocate a special form of sterilization—before marriage. The board of control of lunacy administration, in its report for 1929, recommended prohibition of the marriage of mental defectives. But these physicians think that the end in view—the prevention of procreation—could be realized more effectively, more humanely and less dangerously by making marriage conditioned on previous sterilization. They point out that certain high grade defectives are highly fertile and have many illegitimate children. If they are legally prohibited from marrying, promiscuity would be promoted. Many of them also have strong sexual needs and it is hardly humane to deprive them of lawful marriage. Finally, the promiscuity due to preventing marriage would promote the spread of venereal disease.

A National Maternity Service Foreshadowed

Addressing the annual conference of the labor party, Mr. Greenwood, minister of health, said that it was a tragic thing that maternity was the deadliest of callings, that every year 3,000 mothers should die in the performance of the greatest of all tasks and responsibilities. Yet 60 per cent of maternal deaths were preventable. Moreover, the conditions that led to the deaths of the 3,000 might leave their mark for life on many of the 700,000 who survived. The problem was a baffling one, and so far from the maternity death rate declining, it had actually been increasing. The situation was due to many causes. He was going to say to the local authorities: "Parliament has placed in your hands, in the public health responsibilities which you bear, opportunities for dealing with the problem." He hoped that local authorities would make the necessary provision for antenatal treatment, for maternity hospitals and for postnatal treatment. But it was necessary to go further and to evolve a national maternity service, and the government would do that as soon as possible. To deal with the problem effectively, every form of health provision and health service must be mobilized. Local authorities and the medical profession must be consulted with a view to framing a comprehensive scheme.

The British Red Cross Society

The British Red Cross Society has published a volume containing a report of the first conference of the Empire Red Cross Society, held in London last year. The book shows the widespread activities of the society. In Canada, for example, the British Red Cross runs fifty-four outpost hospitals, providing medical and nursing care for pioneer settlers in places to which ordinary hospitals have not yet penetrated. In Australia, tuberculosis is a great problem. The Red Cross has established seven sanatoriums and convalescent homes throughout the colony for returned soldiers and civilian patients and their families. An interesting feature is the provision of automobiles to enable disabled ex-soldiers to carry on their work. In India, child welfare is in the forefront of the Red Cross problem program. More than 200 child welfare centers have been opened. In the Madras Presidency alone nearly 1,000,000 mothers and children attended the centers in a year. Training is given to the dais (hereditary midwives), whose practices are often appalling. Health education is also carried on by means of films, lantern slides, posters, health and baby weeks and demonstration cars, which tour rural districts. After the great Assam flood last year, the Red Cross inoculated 50,000 persons and so prevented an outbreak of cholera. The South African Red Cross has

developed an extensive scheme for the instruction in first aid, both of Europeans and of natives working in the Transvaal mines. Health vans tour the Kafir villages, giving lectures, and first-aid dressing stations are set up at important centers.

Birth Control Condemned

In a previous letter the carefully guarded tolerance of birth control under certain conditions in the encyclical letter issued by the seventh Lambeth conference of the archbishops and bishops of the Church of England was reported (THE JOURNAL, September 20, p. 874). But the Roman Catholic Church in this, as in other countries, condemns the practice absolutely. Its official head, Cardinal Bourne, Archbishop of Westminster, in a sermon said he would fail in his duty if he allowed to pass unnoticed the Lambeth pronouncement, "which condones in certain circumstances practices—euphemistically described as birth control—which Christian tradition has consistently condemned as unnatural sin. Lest any be led astray by this resolution of the Lambeth conference and placed thereby in danger of committing grievious sin, I now reaffirm the teaching of the Catholic Church on this subject, binding on the conscience of every man and every woman. Any direct interference with the natural consequence of the marital relation—namely, conception, whether within the marriage state or without it—is an unnatural vice, sinning against the nature which the Creator has bestowed on us."

A Great Pathologic Collection

The greatest pathologic collection made by one man since John Hunter laid the foundation of the Museum of the Royal College of Surgeons is the work of Dr. Cuthbert Lockyer, consulting gynecologist to Charing Cross Hospital, who has now presented it to the hospital. It consists of 3,000 obstetric and gynecologic specimens and is the finest of its kind in London. It represents the work of thirty years and is supplemented by 2,000 microscopic sections of the actual specimens displayed or of parallel conditions. Dr. Lockyer has written and published a catalogue, which has taken him five years to compile. He has also provided a donation of $2,500, the interest on which is to be used for the maintenance of the collection in its present perfect condition. The catalogue, of 297 pages, is so arranged as to act as its own index and contains comments that should be instructive to the student. The collection covers all the ordinary diseases of the female genital organs and includes many rare conditions. It should be valuable not only to the students of the hospital but to all investigators of these diseases.

PARIS

(From Our Regular Correspondent)

Oct. 15, 1930.

Meeting of the French Surgical Society

The thirty-ninth annual meeting of the Société française de chirurgie was held, October 6, in the Great Hall of the Faculté de médecine. The corridors, together with booths erected in the courtyard, were replete with exhibits of apparatus and equipment. The president was Dr. Auvray, agrégé professor at the Faculté de médecine de Paris and surgeon to the Hôpitaux de Paris, who was assisted by the vice president, Professor Lambret of Lille, and by the general secretary, Dr. Grégoire. It has been the custom to appoint each year, as the honorary president, a national figure who, though not a medical man, has shown interest in medicine. Maréchal Joffre, Maréchal Lyautey and others have been accorded that honor. This year Mr. Paul Bourget, whose plays and stories contain many allusions to physiologic psychology and who has shown, all his life, a great predilection for medicine, was thus distinguished. He has always expressed regret that he did not become a physician. He took courses in surgery at Maisonneuve, later visited the clinics of Dieulafoy, and today, at the age of 76, he frequents the dispensaries for abnormal children. His opening address abounded in wit, although it was philosophic in tone. He exalted in the surgeon the necessary combination of thought and action, the former illuminating the latter, which may be generalized and taken as a maxim of life itself. The active president, Mr. Auvray, discussed in his inaugural address the need of creating in France, as well as in the United States and in England, a body of professional anesthetists. Often, in hospitals, anesthesia is entrusted to inexperienced students. Auvray recalled with regret the deaths of several members of the society during the past year, particularly Tuffier, Lecêne, Souligoux and Delagénière. The scientific work of the congress comprised the study of three selected topics and of a number of unofficial communications presented by surgeons in the provinces and in foreign countries. In general, the surgeons of Paris are not so widely represented at this congress, although it always meets in Paris, either with the idea of leaving a freer hand to their guests or because the weekly discussions before the Société de chirurgie are found to be adequate. On the other hand, all the morning, in their hospital services and in the large clinics, they give operative demonstrations for the edification of their colleagues visiting Paris and, if occasion arises, even allow their services to be used by eminent foreign surgeons for demonstrative purposes. For instance, Dr. Pierre Rhéaune of Montreal gave a demonstration of his method of performing gastrostomy. Among other representatives from foreign countries who were in attendance may be mentioned Professors Sionard of the University of Quebec, Archibald Young of Glasgow, Lozano of Saragossa, and Alessandri, Diminici and Galeazzi of the universities of Italy.

KÜMMELL'S DISEASE, OR POSTTRAUMATIC SPONDYLITIS

The introductory paper on the first official topic was presented by Drs. Froelich of Nancy and Mouchet of Paris, who discussed the merits of the several names for the disease: rarefying osteitis of the vertebral bodies, posttraumatic disease of the spinal column, posttraumatic deformation of the vertebrae, and others. As to the pathogenesis, the prevailing idea is that of an unrecognized fracture, with hematoma and local denutrition of the bone. The researches of Schmorl of Dresden have contributed much toward the elucidation of the condition. The vertebral depression is due to the fact that the patients, after a slight traumatism, experience no pain and continue to walk. To this must be added the effect of the intervertebral disk, which often manages to break through the interior of the bone tissue and to cause a general disorganization. As Leriche views it, Kümmell's disease is only a special type of posttraumatic osteoporosis due to hyperemia. The authors referred to the growing frequency of this disorder. The war, with the disorder of trench life, automobile accidents with closed cars, and also railway accidents have greatly increased the number of cases. The disease, in 60 per cent of the cases, has its seat in the lumbar or dorsolumbar region. The diagnosis is often difficult in the beginning. The resulting deformation of the spine cannot be remedied other than by the application of a plaster cast and the wearing of a corset. The paper closed with a study of the question from the point of view of labor legislation and insurance.

Further communications on posttraumatic spondylitis were presented by Lozano of Saragossa; Julliard and Oltramare of Geneva; Alivisatos of Athens; Leriche of Strasbourg; Michel of Nancy; Jeanbrau of Montpellier; Proust, Judet, Peugniez, Roederer and Trêves of Paris; Guillaume-Louis of Tours; Rocher and Gourdon of Bordeaux; Leclerc of Dijon; Imbert, Rottenstein, Massini and Silhol of Marseilles; Termier of Grenoble; Perdu of Amiens, and Mencière of Reims.

PREPARATION OF PATIENTS FOR OPERATIONS

Two official papers were offered on "The Preparation of Patients for Operations," by Professor Lambret of Lille and by Dr. Louis Sauvé of Paris. The former dealt with the pre-

vention of disorders due to anesthetics; the determination of the resistance of the patient to be operated on, by means of analyses to discover the functioning of the liver and the kidneys; the preparatory diet; the importance of hydration of the tissues (which led him to oppose absolutely previous purgation), and, finally, the peculiar part played by temperament and by the condition of the endocrine glands. Special consideration was given to diabetes, in which Lambret advised the use of insulin for the preparation of the patient; also to anemia due to previous hemorrhage, in which he recommended the transfusion of blood in order to mitigate the danger of pulmonary and cardiac complications. In fact, the paper dealt with operative results, with a view to preventing unfavorable sequels, as it did with preparatory care. Mr. Sauvé kept closer to the subject in hand and considered the various diathetic states; also diabetes, malaria, obesity, intoxications, tuberculosis and syphilis, from the point of view of the risks that the traumatism will impose on every patient of that type. In conclusion, Sauvé expressed his satisfaction that surgery is enlarging the field of knowledge by means of which operative risks may be diminished and that its rôle is rising above that of mere skilful manual workmanship.

These papers were followed by articles, on the same subject, by Archibald Young of Glasgow; Daniel of Bucharest; Neuman and Mayer of Brussels; Sciaky of Milan; Leriche of Strausbourg; Guyot and Jeanneney of Bordeaux; Chalier of Lyons; Vanverts of Lille; Lardennois of Reims; Heitz-Boyer, Sorel, Pauchet, Dupuy de Frenelle, Petit de la Villéon, Sénéchal and Finikoff of Paris; Masini and Rottenstein of Marseilles; Lefebvre of Toulouse, and Abadie of Oran.

CHRONIC PANCREATITIS

P. Brocq of Paris and G. Miginiac of Toulouse presented a paper on "Chronic Pancreatitis," which was a résumé of an inquiry by the authors among specialists in diseases of the biliary tract, throughout the world. They emphasized that chronic pancreatitis is frequently overlooked, its diagnosis often being due to a chance intra-abdominal exploratory operation; and it is often confused with cancer, even from the histologic point of view. The diagnosis is difficult even when the organ is in hand. Then there is the slowness of the evolution of the condition, with the many remissions and sometimes spontaneous recoveries. The pancreas is frequently subject, in an acute state, to the influence of typhoid, smallpox, diphtheria, pneumonia and mumps, and, in the chronic state, to the influence of tuberculosis and syphilis. One must take account also of the propagation of lesions in the adjacent tissues; more particularly, biliary lesions. As treatment, the liberation of the pancreas from the adhesions that unite it to the adjacent organs often suffices to bring about lasting relief. Partial excisions are dangerous.

SPECIAL COMMUNICATIONS

The numerous nonofficial communications comprised the whole domain of surgery, being presented, as already stated, by physicians from the provinces and from foreign countries. There was one posthumous paper by Dr. Delagenière, who died a few days before the session, dealing with the dangers of lumbar puncture in fractures of the cranium, and with the surgical treatment of cerebral hemorrhages. Dr. Heitz-Boyer and Dr. Moure each presented a paper on the advantages of the electrical knife in surgery. Heitz-Boyer, who utilized an excellent film for his demonstration, recommended that the diathermic knife be abandoned, as it adheres to the tissues in the same manner as the thermocautery. He prefers the knife driven by an interrupted high-frequency current, which allows frank and rapid sectioning, which is just as accurate as with the ordinary knife, and offers great facility in separating the planes of cleavage and in suppressing capillary hemorrhage. Hemostasis, according to Heitz-Boyer, is due to a thrombosis of the small blood vessels caused by the high-frequency current. Nevertheless, as a precaution, he applies a ligature to the more important vessels. Mr. Calot, orthopedist of Berck, announced new signs for detecting at an early date congenital luxations and subluxations of the hip in the new-born. He examines chiefly the site occupied by the head of the femur, which normally should correspond, in projection, to the middle of the line uniting the posterior iliac spine and the pubis. Mr. Jiano of Bucharest recommended a radical treatment for hemorrhoids by means of a special compressing device. Mr. Jeanneney of Bordeaux dealt with narrowing of the rectum due to the use of radium in that region. Young of Glasgow presented two cases of bone tumor treated by resection, together with a large graft. Arnaud and Ciando of Marseilles discussed retardation of consolidation of fractures through injection into the area of colloids of silica and lime. Ferey took up the advantages of the resection of the hypogastric plexus. Mr. Chosson gave his experience with intravenous injections of calcium chloride to remedy postoperative retention of urine.

Among the operative demonstrations given in the hospitals and clinics during the course of the congress, mention may be made of that of Dr. Victor Pauchet on surgery of the digestive tract; of Drs. Marion, Chevassu and Cathelin on the surgery of the urinary passages, and of Dr. Calot of Berck on the treatment of tuberculous osteitis, arthritis and adenitis by modifying injections, without surgical intervention, which Calot regards as always dangerous.

AUSTRALIA

(From Our Regular Correspondent)

Oct. 8, 1930.

The College of Surgeons

Arrangements are being made for the primary fellowship examination of the Royal College of Surgeons of England, to be held in Australia in August or September, 1931, provided not less than twenty-five candidates are eligible.

Two examiners in anatomy and two examiners in physiology, who shall be present or past members of the board of examiners in anatomy and physiology for the fellowship, will be sent by the college from England. A professor of anatomy and a professor of physiology or such other persons as may be agreed on shall be appointed by the council from names submitted by the College of Surgeons of Australasia, to act as assessors for the examiners. The expected deficit on the examination shall be borne equally by the two colleges. The Royal College of Surgeons emphasizes the fact that the proposed scheme will be experimental only, and that it shall be free to decline to hold another examination in Australia without laying itself open to any suggestion of a breach of faith.

Considerable discussion both inside and outside the college has arisen over the rules for the conduct of fellows of the college:

1. The patient, or the person legally responsible for him, must consent in the choice made of a surgeon to perform the operation. It is to be noted that such a consent would be an essential factor in the successful suit by a surgeon for the recovery of his fee.

2. Having been selected by the patient, the surgeon is personally responsible to him for the operation. He is also responsible for, and shall conduct, the postoperative treatment, except by special arrangement with the patient.

3. The surgeon must render his account direct to the patient.

4. The surgeon must not accept his fee for an operation from the practitioner in charge of the patient, unless the surgeon forwards a receipt for the fee received direct to the patient.

5. If circumstances compel the surgeon to delegate the postoperative treatment of a patient to another practitioner, the latter must collect the fee for so doing direct from the patient. The surgeon must not pay the practitioner in charge of the patient a fee for conducting the postoperative treatment.

6. Separate accounts for the assistant, anesthetist or other necessary services must be sent to the patient, or the surgeon must state on his account form the exact amounts due for these services.

7. The assistant's standard fee shall be not more than one eighth of the operation fee, or, alternatively, not more than five guineas. When, owing to special circumstances, the assistant's fee is larger than this amount, the assistant must render his own account on his own account form.

8. The anesthetist's standard fee shall not be more than one eighth of the operation fee, or, alternatively, not more than five guineas. When, owing to special circumstances, the anesthetist's fee is larger than this amount, the anesthetist must render his own account on his own account form.

9. It is desirable that the practitioner in charge of the patient should be present at an operation on his patient. Should he have to travel any considerable distance for this purpose, the patient must be informed beforehand of the extra fee involved.

It was unfortunate that a tactless discussion on fee splitting should have been carried out in the columns of the lay press in Melbourne soon after the publication of these rules. One of the reasons for the commencement for the publication of the new medical journal, the *G. P.*, was this published attack on the ethics of the general practitioner.

A New Medical Journal

The general practitioners' section of the British Medical Association in Victoria, considering that its interests were not sufficiently served by the *Medical Journal of Australia,* has commenced publishing a journal of its own which has the terse title the *G. P.* The field that the journal covers is the reverse of academic. It deals mainly with problems of everyday general medical practice and medicopolitical development that affects the general practitioner. Original articles dealing with medical research are not included in the scope; the journal aims to act as a monthly refresher for the general practitioner on modern technic in diagnosis and treatment.

The journal is published monthly and has an Australia-wide circulation. It has had a most encouraging reception and the outlook seems to be that it will overcome the rigors of the neonatal period. The journal has adopted rather a strong attitude toward the activities of the College of Surgeons of Australasia. Some misunderstanding developed during the annual congress of the college in Melbourne early this year, and the general practitioners section took strong exception to the attitude which the college adopted toward the general practitioners.

The *G. P.* considers that the college is unsurping the position which the British Medical Association in Australia occupies as the corporate body of medical thought and action in Australia.

Diphtheria Immunization in Australia

Since the fatalities following on diphtheria immunization of children occurred at Bundaberg, Queensland, in January, 1928, when twelve children died within forty-eight hours of inoculation, the whole question of diphtheria immunization has been in abeyance. Publicity was given to the fatalities at the time and as a natural result the people were averse to subject their children to immunization. It must, unfortunately, be admitted that the report of the royal commission appointed to inquire into the cause did not completely satisfy the public as to the future safety of the process. It was a surprise to bacteriologists and clinicians also that staphylococci could provoke so fulminating an illness on subcutaneous injection. The illness did not resemble the ordinary clinical forms of staphylococcal septicemia but was an acute intoxication which either ended fatally or was overcome within a day or two in the patients who recovered. Further, as judged by animal experiments, the strain isolated was by no means that of an exceptionally virulent staphylococcus.

Recent work by Burnet and Kellaway at the Walter and Eliza Hall institute, Melbourne, on staphylococcal toxin showed that a definite exotoxin is produced by all the pyogenic staphylococci and is in all cases qualitatively identical, although varying quantitatively in differing strains. They considered that the Bundaberg tragedy shows that under certain conditions large amounts of staphylococcal toxin can be elaborated from the human body, causing death in a manner that they were able to reproduce in their experiments on animals.

The public was loath to adopt diphtheria immunization, and health, municipal and school medical authorities were tacitly agreed that the subject had better be dropped. It came as a surprise, therefore, when in May of this year the lay school committee at Virginia, near Brisbane, Australia, asked for the children to be immunized in the face of a diphtheria epidemic that was raging. This request coincided with the issue by the Commonwealth Serum Laboratories of a formaldehyde-treated diphtheria prophylactic anatoxin. The technic used in the immunization was to give the children a Schick test and at the same time to do a skin test using 0.1 cc. of a 1:20 dilution of the anatoxin. The Schick positive and anatoxin negative children were then immunized with anatoxin.

Some 200 children were thus treated without untoward effects and although no fresh requests for immunization by other communities have been made to date it is considered that the public confidence in the process has increased, especially in view of the fact that a different method from that used at Bundaberg is now being employed. A sharp epidemic of diphtheria will soon awaken the demand for immunization.

RIO DE JANEIRO

(From Our Regular Correspondent)

Oct. 15, 1930.

The Roentgenographic Picture in Tuberculosis

Dr. M. de Abreu recently lectured before the Academia Nacional de Medicina on the characteristic roentgenographic picture observed in pulmonary tuberculosis. The lesion of pulmonary tuberculosis, as represented by a spot in the roentgenogram, has a rapid development till it reaches the so-called total limit of volume for the initial period of tuberculosis. Then its development follows one of three forms of evolution: (1) The lesion may continue in a slow development (chronic tuberculosis); (2) the development of the lesion may stop and in this case the spot that represents the lesion has the same size whenever a new picture is taken; (3) the lesion may recede. The spot on the picture then appears smaller and smaller at the following roentgen examinations, till it disappears completely as the lesion is absorbed. In roentgenograms taken of patients with pneumonia it is observed that the lesions in the lung, as represented by the spot in the picture, show a constant development in size up to the seventh day. Then the lesion enters a stationary period during twenty-four or forty-eight hours and from then the lesions recede till the twelfth or fourteenth day of the disease. In cancer and in aneurysm the roentgen spot shows a constant development of the lesion during a period of twelve months. This development is rapid in cancer and slow in aneurysm. The speaker illustrated his lecture by showing charts of the curves of evolution of the lesion observed in different cases of tuberculosis, aneurysm, cancer and pneumonia.

Domestic Animals as Carriers of Yellow Fever

Dr. J. Lemos Monteiro presented before the Sociedade de Medicina e Cirurgia de São Paulo the results of experiments made in animals with the aim of determining the rôle of domestic animals as carriers of yellow fever. On inoculation into dogs, the yellow virus seems to keep its virulence in the

organism of the animals for some days, so that on reinoculation into a rhesus monkey it causes a febrile reaction. Inoculation of the virus of yellow fever into cats causes, after a period of incubation, fever and other symptoms. Blood withdrawn from cats after twelve days of their attack of experimental fever, and injected into normal rhesus monkeys, causes a typical attack of yellow fever. At the end of thirty days the virus from the cat still is able to provoke the immunity of the rhesus monkey against a further inoculation of the virus. The author's results confirm those of Bauer and Mahaffy, which were obtained by means of the inoculation of certain African monkeys, and they point out the importance of domestic animals as carriers of the virus of yellow fever.

Bacillemia in Leprosy

Dr. Nelson de Souza Campos of São Paulo published recently a paper on bacillemia in leprosy in which he reported the determination of bacillemia on 100 patients with various forms of leprosy. He obtained positive results in fifty-five cases and doubtful results in eight cases. In tuberculous and mixed forms of leprosy, bacilli were found in the blood in a high rate (87.5 and 73.8 per cent, respectively) of the cases observed. In the nervous and maculo-anesthetic forms of leprosy, bacilli were found in the blood in a small percentage. The high content of bacilli in the blood of patients with tuberculous and mixed forms of leprosy points out the greater danger of contagion of these forms of leprosy over the other forms, and the necessity of a more intense campaign in hygiene and prophylaxis against them.

Intestinal Obstruction Caused by Ascarids

Dr. Motta Mais reported recently the case of a girl, aged 3, who presented a clinical picture of peritonitis and intestinal obstruction. An exploratory laparotomy revealed a large amount of green, flocculent and putrid liquid in the abdomen. Parts of the ileum were dilated and a mass of white cords was seen inside, which on examination proved to be bundles of ascarids. The ileum was gangrenous in places. An enterostomy was performed and a large number of ascarids removed. About 20 cm. from the first occlusion there was another mass formed by a bundle of ascarids. Ninety-two worms were removed. The smallest parasites were 15 cm. and the longest 30 cm. long.

UKRAINE

(From Our Regular Correspondent)

Odessa, Oct. 20, 1930.

Conference of Physiologists

The fourth conference of physiologists, held in the city of Charkov, May 20-26, was characterized by many interesting reports. In the plenary sittings of the conference much attention was paid to the questions of weariness and nutrition. Papers were read by Professor Kekcheev of Moscow on "Weariness and Methods for Its Study"; Professor Kagan of Charkov, "Energetics of Work and Weariness"; Professor Bernstein of Moscow, "The Present Biomechanical Method and the Study of Weariness." Professor Palladine of the Ukrainian Biochemical Institute, Charkoff, in his report on "Biochemistry and Weariness," explained the biochemical processes that take place in the brain, during the state of weariness.

The session gave much attention to questions of nutrition. "Albumin Problems in Nutrition" was discussed by Professor Zbarsky of Moscow, and "Vegetables and Canned Vegetables as a Source of Vitamins" by Professor Cherkess of Odessa. Other reports were concerned with the organization of public nutrition. According to the five year plan of construction of the Soviet Union, it is proposed to open so many eating houses and like establishments that, before the end of the year 1933, half of the population will get their food there. The scientific study of all questions connected with public nutrition has begun only recently, and at this conference these questions were considered for the first time. Therefore, in its resolution the session made a special point as to the solving of the problem of public nutrition in the shortest possible time.

The conference was much interested in the paper of Professor Zeleny of Leningrad on "The Rôle of Subcortical Centers," which was accompanied by moving pictures. The author, experimenting on dogs which had their cerebrums removed by the Holz method, worked out conditional reflexes, defensive and phonetic. These dogs also could differentiate the sources of irritation. Professor Zeleny thinks that even a total absence of conditional reflexes in animals that have no pallium does not prove that normal animals have no associative centers in their subcortical centers.

Dr. Brouchanenko of Moscow demonstrated to the conference his preparation of a dog's head separated from its trunk. By joining the head of a dog, separated from its trunk, to a system of pumps and apparatus for keeping up artificial circulation and breathing, the author found that this head maintains for about five or six hours a series of central nervous functions. It maintains reflexes from the peripheral apparatus and has its automatic reactions of an endogenous character. The dog's head separated from its trunk keeps the winking reflex, when the eyelid or cornea is touched. The change of oxidation in blood brings forth yawns, a wide opening of the mouth and other manifestations analogous to suffocation. They disappear when oxidation is improved. When it is stopped, the dog's head shows manifestations of agony and death.

In the section of biochemistry, the foreign guests were Professor Thomas of Leipzig and Professor Winterstein of Breslau, whose papers were of great interest to the soviet physiologists. The next conference will be held in Tiflis (Caucasus) in 1932.

The Campaign Against Cancer in Ukraine

The progressive increase in the Ukrainian Socialist Soviet Republic is a fact that attracted the attention of physicians even at the time when the country was beginning to recover after the civil war. The Surgical Society of Odessa in 1922 was the first in Ukraine to raise the question about taking proper measures. Four years later in Moscow the first all-union conference to consider means of combating cancer took place. Because of a deficiency of resources it was impossible then to realize the plans proposed. Until recently, the combat against cancer has not come out of the limits of individual investigations and experimental work. Only this year has it been placed on a solid basis. According to the plan of the people's commissariat of health, the whole country will be divided into four districts, in each of which there will be organized an institute for the study of cancer. There already exists such an institute in Charkov and soon similar institutes will be opened in Kiev, Odessa and Dniepropetrovsk (formerly Ekaterinoslav).

The roentgen-radiologic institute for the study and prevention of cancer will comprise: 1. A scientific department (theoretical and experimental), which will study the origin of cancer and give attention to the correlation between cancer and professional diseases. 2. A clinical department for administering aid to patients by surgery and by radium and roentgen rays. 3. A pedagogic department to give special courses for physicians, where methods of early diagnosis and cure will be studied. 4. A special department to organize public lectures and theatrical plays, to publish posters and popular pamphlets and books, and to issue moving pictures with the aim of popularizing the struggle against cancer. The "Ukraine film," a state organization, will undertake in Odessa, work in conjunction with this department of the anticancer institute, on popular films and also scientific films for physicians. 5. The statistical department, which will collect the result of the work of the district institute and of

the country and district anticancer stations. The latter will be formed in every rural hospital. The statistical department will not only receive all the materials from these institutions but compile genealogical lists of cancer patients. An all-union anticancer session will be held in Charkov in February, 1931. Its aim is to coordinate all the means of fighting cancer.

BERLIN

(From Our Regular Correspondent)

Oct. 20, 1930.

Eugenics and the Birth Rate

In the beginning of the eugenic movement, eugenists in America decided to make experiments to discover whether hereditary taints or defects could be eradicated by control measures. As Dr. Scheumann recently brought out at the meeting of the Vereinigung öffentlicher Eheberatungsstellen, in Dresden, eugenists demanded, at that time, that persons who, with pathologic hereditary tendencies, were a menace to future offspring, should be prohibited from marrying. Marriage should, it was urged, be made dependent on the securing of a special permit. The expectations aroused by these measures were not, however, realized. Those concerned avoided the issue by marrying in another state in which no such restrictions were known: or, if possible, they concealed their disease. Many eugenists in Germany supported the view that the presentation of a certificate as the basis for securing a marriage license was not only desirable but necessary. The Prussian ministry of public welfare, in 1926, by an order addressed to the district health officers, advocated the creation of examination centers for the issuance of marriage permits. No force could be used to compel marriage candidates to submit to a medical examination, as there was no basis in the federal laws for such a measure. Other eugenists followed a different course. Instead of seeking the enactment of new laws, they sought to clarify the minds of the masses by endeavoring to strengthen the feeling of responsibility for their own health and the health of their offspring. This trend received the endorsement of Dr. Scheumann, who conceived of a comprehensive biologic consultation of adults both before and during marriage, and recommended that certification be placed in the hands of physicians and that the various welfare centers be brought under one uniform system. He referred to Saxony, which, in 1927, brought the marriage consultation centers into a uniform system with public welfare. The marriage consultation centers in Saxony have achieved good results because they rest on voluntary acquiescence. Thus, Professor Fetscher, the director of the municipal marriage consultation center in Dresden, reported that, in three years, out of 2,200 applicants, he was able to induce feebleminded or mentally ill persons, in 123 cases, to renounce the idea of having children, and many of them submitted to sterilization.

A service was rendered by Prof. Robert Wilbrandt, of the Dresdener Technische Hochschule, who pointed out the connection between the decline in the birth rate and the existing economic status. It has been found that immoderate wealth is not conducive to an increase in the birth rate. However, it must be recalled that modern medical technic now affords wide circles the opportunity of limiting the number of children in a family. It has become the "custom" to have only one child or even none. In southern France there are said to be areas that are almost depopulated, and it is well known that childless peasant couples often go to Switzerland to select an heir to their property. It is evident that the birth rate is closely connected with economics. Germany still has a large population in relation to its resources. It is in a critical position, from which it can be rescued only in case the world's markets, through reductions in tariff duties, are thrown open to export trade to a greater extent than at present, and thus enable it to accumulate capital. Something must be done to increase the supply of intellectual leaders, for only those who possess preeminent physical and mental equipment can maintain themselves in the economic struggle. All others must, sooner or later, become dependent on community or state aid.

It follows that our existence depends on the begetting of outstanding individuals possessing valuable hereditary qualities, for whom, then, the most favorable world environment must be created.

At present, Germany lacks all the preconditions for increasing the birth rate. While the total value of Germany's exports reaches a respectable sum, it is bought, nevertheless, through the nationalization of production, which, in turn, produces at times a vast army of jobless men. Duties, instead of declining, are being increased. The accumulation of capital has become much more difficult. Instead of endeavoring constantly to improve the quality of our schools and thus lay the foundation for the training of intellectual leaders, public education in the rural districts is being neglected. It is not surprising, therefore, that, in closing his address, Wilbrandt expressed himself in these terms: "If we consider soberly and dispassionately the present status of economic affairs in Germany, we are forced to conclude that, as a matter of fact, it is indeed fortunate that the population of the country is increasing so slowly."

Meeting of Psychoanalytic Society

At the second session of the Deutsche psychoanalytische Gesellschaft in September, in Dresden, two introductory public addresses preceded the scientific work of the session. Dr. Meng of Frankfort-on-Main spoke on "Psychic Hygiene on a Psychoanalytic Basis." He gave a summary of the service that psychoanalysis performs for the modern physician and the teacher in his relation with his protégés. Frau Dr. Horney of Berlin delivered an address on "The Mutual Distrust of the Sexes," which awakened great interest. What she presented had special value, for in her were combined the physician, scientifically trained, and a woman who was familiar with the emotions and feelings that are peculiar to her sex. In the scientific sessions, Dr. Boehm and Dr. Fenichel of Berlin discussed the Edipus complex. The titles of these addresses were: "The History of the Edipus Complex" and "Special Forms of the Edipus Complex," respectively. Dr. Reich of Vienna dealt with "Psychoanalysis and Character Formation," and Dr. Landauer of Frankfort-on-Main discussed "The Individual and His Fellowships." In the evening there were two more public addresses, by August Aichhorn of Vienna on "Guidance in Educational Matters," and Groddeck of Baden-Baden on the "Struwelpeter," which, for more than fifty years, has afforded amusement to countless German children. The "Struwelpeter," written by a physician by the name of Hoffmann, is a picture book with charming verses, adapted with great skill to the child's understanding. Even this charming book has to be dissected by the psychoanalysts!

Industrial Hygiene Society

At the annual session of the Deutsche Gesellschaft für Gewerbehygiene, in Breslau, September 24-25, the chief topic on the program was "Determination of the Degree of Disability in Occupational Diseases." The official paper on "Determination of Degree of Disability in Severe Pneumonoconiosis" was presented by Reichmann of Bochum, who described the development of the disease as revealed by the roentgenogram, and its diagnostic differentiation from tuberculosis. He reported statistics on the association of silicosis and tuberculosis. The mild cases of silicosis presented 8.7 per cent of tuberculosis; the severe cases, 30 per cent. However, tuberculosis was present in 75 per cent of severe cases of silicosis that came to necropsy. The clinical symptoms of pneumonoconiosis are comparatively insignificant. The degree of disability is determined by the functioning of the lung and the earning capacity

of the examinee. In severe silicosis, the compensation should be at least 50 per cent of the total. If severe pneumonoconiosis is associated with tuberculosis, the latter becomes, in matter of fact, a compensable disease. The regulations concerning the granting of compensation for severe pneumonoconiosis should be extended to further industries.

Jadassohn and Mayer of Breslau offered a paper on the second official topic, "Determination of Degree of Disability in Skin Diseases of Industrial Origin." Most eczemas are of industrial origin. Next in order come the effects of rays and cancer-like changes. The delimitation of eczema as a disease entity was discussed. Industrial eczemas are due for the most part to hypersensitiveness, which is seldom congenital but is acquired in the industries through sensitization. The so-called incubation time varies within broad limits—up to ten years and more. Industrial eczemas are not in themselves characteristic. In the search for the offending substance, the irritants proposed by Jadassohn are useful. They are best employed in a suitable clinic. On the basis of the existing laws, only a few skin diseases of industrial origin are compensable. Hypersensitive persons are granted a compensation for loss of time resulting from the need of changing their occupation. Intimate contact with tar, pitch and arsenic may cause, in addition to eczemas, also sensitization to light and cancerous changes.

Cobet of Breslau followed Jadassohn and Mayer, and discussed the determination of the degree of disability in infectious diseases affecting the personnel in attendance on the sick. Of the acute infectious diseases, the most important are scarlet fever and diphtheria—but also sore throat with its sequels. Even in pneumonia, the possibility of infection cannot be denied. Proof of negligence does not entail loss of right to compensation. Certain difficulties are encountered in connection with claims for compensation owing to alleged indirect infection through contact with inanimate objects or germ carriers. In every case, the facts must be carefully inquired into in order to determine the possibility of disease. Germ carriers are not entitled to compensation, as they are not sick; they may not be able to continue in their regular occupation, but they are not otherwise incapacitated. Of the chronic infectious diseases, tuberculosis occupies first place. The possibility of a previously existing latent infection makes more difficult the demonstration of an occupational contamination. A thorough roentgenologic examination of the personnel on entering a new service will in the future make the determination of the degree of disability much easier. Next in order come syphilis, gonorrheal conjunctivitis and trachoma.

Marriages

FRANCIS M. B. SCHRAMM, Johnstown, Pa., to Mrs. Jane Brooks Staman of Mount Pleasant, September 22.

PHILLIP H. SIGRIST, New Philadelphia, Ohio, to Mrs. Lillian M. Ganiard of La Grange, Ind., October 22.

HARRY EVERETT ALDERSON, San Francisco, to Miss Cordelia Church Bishop, in Oakland, September 26.

HAROLD D. VAN SCHAICK, Jacksonville, Fla., to Miss Maude Coney of Savannah, Ga., September 10.

CHARLES PATTERSON ELDRIDGE to Miss Lucy C. Cheatham, both of Raleigh, N. C., September 28.

RICHARD OLNEY RUSSELL to Miss Louise B. Taylor, both of Birmingham, Ala., October 23.

ELBERT W. JACKSON, Paducah, Ky., to Miss Eleanor Johnson of Kansas City, Mo., October 3.

NORMAN L. SCHMIDT, New York, to Miss Dorothy Fain of Nashville, Tenn., August 13.

WENDELL A. KILLINS, Omaha, to Miss Genevieve Quale of Rochester, Minn., October 4.

WILLIAM ROY DILLINGHAM to Miss Zara Simpson, both of Salina, Kan., August 1.

Deaths

Edgar J. George, Chicago; Chicago Homeopathic Medical College, 1890; Hahnemann Medical College and Hospital, Chicago, 1905; formerly professor of ophthalmology, Hahnemann Medical College and Hospital; member of the American College of Surgeons; aged 67; on the staff of the Chicago Memorial Hospital, where he died, October 21, of coronary thrombosis.

Frederic D. Huntington Coerr, New York; Columbia University College of Physicians and Surgeons, New York, 1904; member of the Medical Society of the State of New York and the American College of Surgeons; served during the World War; on the staff of the New York City Hospital; aged 55; died, October 9, at Metuchen, N. J., of heart disease.

William Weed Van Baun, Philadelphia; Hahnemann Medical College of Philadelphia, 1880; professor emeritus of pediatrics at his alma mater; formerly on the staffs of the Hahnemann Hospital, West Philadelphia Homeopathic Hospital, Woman's Southern Homeopathic Hospital and St. Luke's Hospital; aged 72; died, October 6, of cerebral hemorrhage.

John Philip Gilligan, O'Neill, Neb.; Albany (N. Y.) Medical College, 1890; member and past president of the Nebraska State Medical Association; formerly secretary of the Holt County Medical Society; state senator, 1906-1908; for eighteen years member of the school board; at one time mayor; aged 63; died, September 28, of progressive muscular atrophy.

Ernest Lewis McEwen ⊕ Chicago; Rush Medical College, Chicago, 1897; associate clinical professor of dermatology at his alma mater; member of the American Dermatological Association; on the staffs of St. Francis Hospital, Evanston, Home for Destitute Crippled Children and the Presbyterian Hospital, Chicago; aged 63; died, October 30, of heart disease.

Henry Arnold Alderton, Palo Alto, Calif.; Medical Department of Columbia College, New York, 1885; member of the American Otological Society; formerly on the staffs of the Brooklyn Eye and Ear Hospital, Kingston Avenue Hospital, Kings County Hospital, and the Bushwick Hospital, Brooklyn; aged 66; died, September 30, of arteriosclerosis.

Richard Mark Brown ⊕ Ogden, Utah; Columbia University College of Physicians and Surgeons, New York, 1911; member of the American Roentgen Ray Society and the Radiological Society of North America; served during the World War; aged 45; died, September 12, in a hospital at Salt Lake City, following an operation for cholelithiasis.

Edward S. Kelly, New Orleans; Medical Department of Tulane University of Louisiana, New Orleans, 1897; member of the Louisiana State Medical Society; chief of the sanitary division of the city board of health; formerly a druggist, and member of the parish school board; aged 61; died, October 2, of chronic myocarditis and nephritis.

John Donald MacRae ⊕ Asheville, N. C.; University of Nashville (Tenn.) Medical Department, 1897; member of the Radiological Society of North America and the American College of Radiology; president of the Buncombe County Medical Society; aged 56; died, September 6, of injuries received in an automobile accident.

Charles Albert Bigler, Jr., Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1902; formerly professor of rectal diseases at his alma mater; member of the American College of Surgeons; aged 55; died, August 15, in the U. S. Naval Hospital, of carcinoma of liver, chronic arthritis and myocarditis.

Walter Lowrie Hunt, Bangor, Maine; Medical Department of Columbia College, New York, 1875; member of the Maine Medical Association; past president of the Penobscot County Medical Society; on the staff of the Eastern Maine General Hospital; aged 81; died, June 10, of carcinoma of the pancreas and liver.

Marcus Duke Smith, Cambridge, Md.; University of Maryland School of Medicine, Baltimore, 1914; served during the World War; formerly on the staff of the Cambridge Hospital; aged 38; died, July 25, in the U. S. Veterans' Hospital, Oteen, N. C., of pulmonary tuberculosis and tuberculous laryngitis.

Stephen Cambreleng Powell, Newport, R. I.; Yale University School of Medicine, New Haven, 1864; Medical Department of Columbia College, New York, 1864; member of the Rhode Island Medical Association; on the staff of the Newport Hospital; aged 87; died, in October, of chronic myocarditis.

Thomas Franklin Dornblaser ✠ Amboy, Ill.; Medical Department of the University of Illinois, Chicago, 1908; veteran of the Spanish-American War; formerly member of the school board; one of the medical directors of the Amboy Public Hospital; aged 51; died, September 28, of heart disease.

Emery Szamosi ✠ Bridgeport, Conn.; University of Budapest, Hungary, 1919; served during the World War; on the courtesy staffs of the Bridgport Hospital and St. Vincent's Hospital; aged 34; died, September 18, of septic arthritis, endocarditis and pulmonary embolism.

William Frederick Brooks, Bagwell, Texas; University of Michigan Homeopathic Medical School, Ann Arbor, 1888; member of the State Medical Association of Texas; aged 68; died, June 29, in Battle Creek, Mich., of aortic insufficiency, hypertension and arteriosclerosis.

Robert Thurlow Hood ✠ Pittsburgh; University of Pittsburgh School of Medicine, 1914; member of the American College of Physicians; served during the World War; aged 43; on the staff of the Western Pennsylvania Hospital, where he died, October 5, of psoas abscess.

Charles Eugene Perry, West Hartford, Conn.; Tufts College Medical School, Boston, 1909; member of the Massachusetts Medical Society; formerly superintendent of the New Hampshire State Sanatorium, Glencliff; aged 47; died, July 26, in Hartford, of heart disease.

George W. Kinard, Leacock, Pa.; Jefferson Medical College of Philadelphia, 1887; member of the Medical Society of the State of Pennsylvania; aged 69; died, September 19, in the Lancaster (Pa.) General Hospital, following an operation for hypertrophy of the prostate.

John Philip Nicodemus, Indianapolis; Indiana Medical College, School of Medicine of Purdue University, Indianapolis, 1906; member of the Indiana State Medical Association; served during the World War; aged 47; died, October 8, of a self inflicted bullet wound.

Frederick Percy Lawton, Traverse City, Mich.; University of Michigan Medical School, Ann Arbor, 1897; member of the Michigan State Medical Society; member of the school board for twelve years; aged 60; died, September 27, of intestinal obstruction.

Julius Clegg Hall ✠ Albemarle, N. C.; University College of Medicine, Richmond, 1899; secretary and past president of the Stanley County Medical Society; aged 56; on the staff of the Yadkin Hospital, where he died, October 3, of streptococcic sore throat.

William J. Madsen ✠ Millers Falls, Mass.; Middlesex College of Medicine and Surgery, Cambridge, 1920; Missouri College of Medicine and Science, St. Louis, 1922; aged 45; died, July 17, in Boston, of carcinoma of the rectum.

William Allen Bush, Winchester, Ky.; Kentucky University Medical Department, Louisville, 1905; member of the Kentucky State Medical Association; served during the World War; aged 60; died, September 28, of acute nephritis.

Lewis Samuel Dietrich, Stevens Point, Wis.; Northwestern University Medical School, Chicago, 1906; member of the State Medical Society of Wisconsin; aged 59; died, September 22, of nasal hemorrhage and prostatectomy.

William A. Pitzele, Lorain, Ohio; University of Illinois College of Medicine, Chicago, 1903; member of the Ohio State Medical Association; on the staff of St. Joseph's Hospital; aged 53; died, November 1, of uremia.

Charles M. Sebastian, Martin, Tenn.; University of Louisville (Ky.) School of Medicine, 1870; member of the Tennessee State Medical Association; aged 80; died, September 28, of pernicious anemia and arteriosclerosis.

Isaac Deering Harper, South Windham, Maine; Medical School of Maine, Portland, 1885; member of the Maine Medical Association; aged 70; died, August 4, in Gorham, of chronic myocarditis and coronary thrombosis.

Alphonso Nelson Witham, Westbrook, Maine; University of Vermont College of Medicine, Burlington, 1885; member of the Maine Medical Association; aged 72; died, August 13, in a local hospital, of arteriosclerosis.

William C. Lipscomb, Crockett, Texas; University of Louisville (Ky.) School of Medicine, 1883; Medical Department of the University of Louisiana, New Orleans, 1891; aged 73; died, October 1, of carcinoma.

William Thomas Chinn, Wellsburg, Iowa; College of Physicians and Surgeons, Keokuk, 1890; aged 78; died, October 5, in the Ellsworth Hospital, Iowa Falls, following an operation on the gallbladder.

Edward Wier Smith ✠ Meriden, Conn.; McGill University Faculty of Medicine, Montreal, Que., Canada, 1882; member of the American College of Surgeons; aged 76; died, October 8, of coronary thrombosis.

John Nicol Vroom ✠ Denver; Denver College of Medicine, 1889; Rush Medical College, Chicago, 1890; aged 65; died, August 3, in St. Joseph's Hospital, of carcinoma of the duodenum.

Robert Gustav Boehm, Chicago; Loyola University School of Medicine, Chicago, 1916; aged 38; was killed, October 22, when the automobile in which he was driving was struck by a street car.

Almon S. Shafer, Columbia, Iowa; State University of Iowa College of Medicine, Iowa City, 1889; aged 72; died, September 25, in Solon Springs, Wis., of carcinoma of the prostate.

Stanley Sevier Warren, Columbus, N. M.; University of Pennsylvania School of Medicine, Philadelphia, 1894; aged 59; died, September 24, in Los Angeles, Calif., of chronic myocarditis.

Edward Kirby Morris ✠ Merrill, Wis.; Rush Medical College, Chicago, 1894; on the staff of the Holy Cross Hospital; aged 63; died, August 26, of chronic nephritis and myocarditis.

Peter J. Koerper, Wilmette, Ill.; Rush Medical College, Chicago, 1903; Spanish-American War veteran; aged 52; died, September 14, of cirrhosis of the liver and chronic nephritis.

Michael Coleman Ryan, Coaldale, Pa.; Jefferson Medical College of Philadelphia, 1888; aged 76; died, May 17, in the Hazleton (Pa.) State Hospital, of carcinoma of the neck.

David Bruce Anderson, Paris, Ky.; Louisville Medical College, 1902; member of the Kentucky State Medical Association; aged 53; was accidentally drowned, October 3.

William Arthur Martin, San Francisco; Universität Heidelberg Medizinische Fakultat, Heidelberg, Baden, Germany, 1882; aged 74; died, September 7, of heart disease.

Walter Edwin Walker ✠ Burlington, N. C.; Medical College of Virginia, Richmond, 1903; aged 50; died, October 3, in a local hospital, of cerebral hemorrhage.

Alfred Vincent Wepfer, Oakland, Calif.; Stanford University School of Medicine, San Francisco, 1923; aged 47; died, August 4, in Yreka, of appendicitis.

John Edwin Stillwell ✠ New York; Medical Department of Columbia College, New York, 1875; aged 77; died suddenly, October 6, of coronary thrombosis.

Althea Edmund Bradshaw, Halo, Ind.; Kentucky School of Medicine, Louisville, 1878; aged 80; died, September 6, of carcinoma of the stomach.

Byron Leaford Hale, Cherryvale, Kan.; Kansas Medical College, Topeka, 1900; aged 64; died, September 17, of carcinoma of the prostate.

James Thomas Carter, Walhalla, Texas; Medical Department of the University of Louisiana, New Orleans, 1878; aged 75; died, June 24.

Charles Herbert Lowell ✠ Carmel, Calif.; Cooper Medical College, San Francisco, 1896; aged 55; died, July 30, at Port Lobos Gate.

James Egbert ✠ Indianapolis; Medical College of Indiana, Indianapolis, 1898; aged 59; died, October 8, of uremia and acute nephritis.

Edward R. Fletcher, Decoto, Calif.; Rush Medical College, Chicago, 1870; aged 85; died, August 6, of chronic myocarditis.

John Hazlewood, New Albany, Ind.; Kentucky School of Medicine, Louisville, 1883; aged 66; died, August 26, of lobar pneumonia.

Henry Logan Giles, Chicago; University Medical College of Kansas City, Mo., 1896; aged 57; died, July 24, of arteriosclerosis.

Leander Zebina Skinner, Loudonville, Ohio; Baltimore Medical College, 1894; aged 63; died, October 10, of angina pectoris.

Nathan Kaufman, Brooklyn; Long Island College Hospital, Brooklyn, 1915; aged 47; died, October 1, of hypostatic pneumonia.

James Gillespy Strawn, St. Louis; Meharry Medical College, Nashville, Tenn., 1923; aged 46; died, July 31, of sunstroke.

Gavin Shearer Herbert ✠ Los Angeles; College of Medicine and Surgery, Chicago, 1909; aged 44; died, August 12.

Robert Creswell Black, Denver; Emory University School of Medicine, Atlanta, 1917; aged 42; died, August 28.

Bureau of Investigation

THE DUGDALE LIBEL SUIT

Frederick Dugdale, Abrams and Koch Disciple, Loses His Libel Suit Against the Lowell Sun

Frederick Dugdale, M.D., of Lowell and Boston had his license to practice medicine in the State of Massachusetts revoked April 18, 1929, for "gross misconduct in the practice of his profession." There were two hearings in the revocation proceedings—one in January, 1928, at which time Dugdale obtained a writ of mandamus against the state board, and a second one, a little more than a year later, at which time the license was revoked.

The Lowell (Mass.) *Sun*, at the time of the first hearing, published an account of that hearing and stated that the charges against Dugdale grew out of alleged professional misconduct on his part in the treatment of a Mrs. Caton, who subsequently died of cancer. As a result of this publication, Dugdale brought suit against Mr. John H. Harrington, publisher of the *Sun*, charging libel and demanding $50,000 damages. The case came to trial a few weeks ago and lasted about a week. The jury, after less than two hours of deliberation, brought in a verdict in favor of the newspaper.

Frederick Dugdale, according to our records, was born in 1880 and was graduated in 1903 by the Baltimore Medical College. For some years he advertised as a "specialist" in "skin, blood and nervous diseases" and operated a mail-order "rheumatism cure." When the large economic possibilities of the Abrams quackery became obvious, Dugdale was one of the disciples of that cult. In 1921, his name appeared as "President" of the "Allied Medical Associations of America," one of the "twilight-zone" organizations patronized by faddists and quacks. His name also appeared as one of the officers of the "Medical Society of the United States," which was originally created to organize fee-splitters but later became a "society of protest against the autocracy of the A. M. A." Still later Dugdale's name was found as "Chairman" of the "Board of Trustees" of the "American Association for Medico-Physical Research," organized originally by the outstanding quack of the century, Albert Abrams, under the title, "American Association for Spondylotherapy."

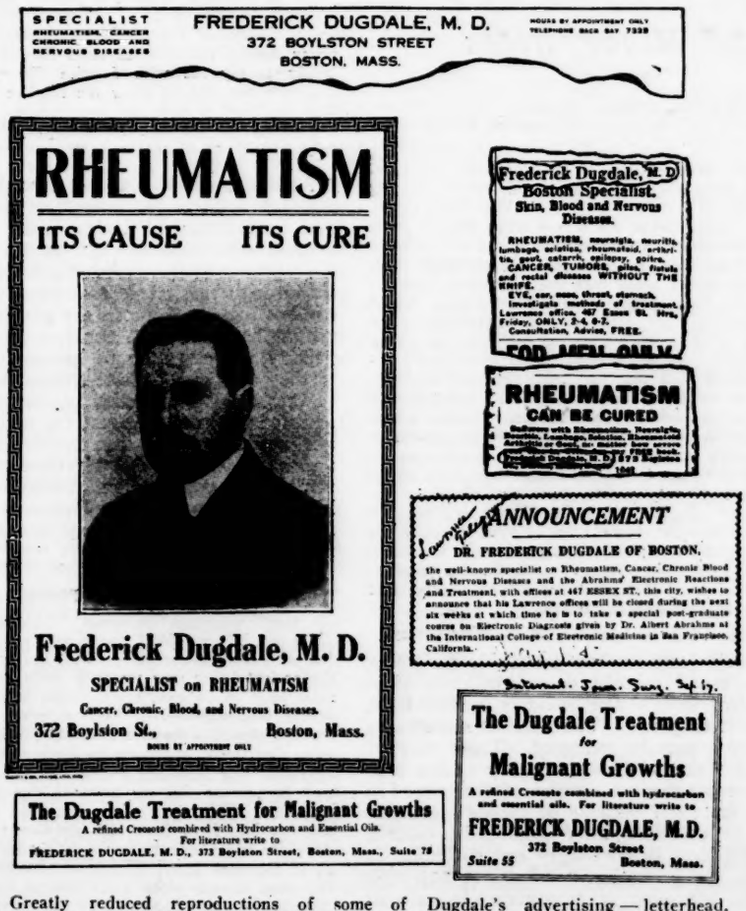
Frederick Dugdale is, of course, not a member of his local medical society nor of the American Medical Association. Yet, at the time of the revocation hearings in 1929, he is said to have stated under oath that he was a member of the American Medical Association, and to have produced a membership card from the American Medical Association made out in his name. It seems that due to a clerical error, Dugdale was sent a membership card instead of a receipt for a subscription to THE JOURNAL. As soon as this error was discovered, notice was served on Dugdale, by registered mail, to return the card sent to him in error. To this day the card has not been received by the American Medical Association.

For some years, too, Dugdale had his own "cancer cure," which was vaguely described in an article that appeared under his name in the *Charlotte Medical Journal* in 1918 as a mixture of "specially prepared creosote with a high guaiacol content, scientifically combined with hydro-carbon and essential oils, presenting a mixture which possesses bactericidal and germicidal properties." Still later, as the Koch "cancer cure" became a wonderful money-maker, Dugdale became a Koch disciple and in the recent libel suit the Koch "treatment" figured largely.

The newspaper's defense of the publication of the abstract of the first hearing in the revocation proceedings against Dugdale was that such an abstract was privileged. The newspaper also held that its reference to the case of a Mrs. Caton, who had been treated by Dugdale by the Koch method for treatment, was justified because it was true. It appeared that Mrs. Caton, when in the last stages of cancer, went with her husband and other relatives to Dugdale, who, according to the report, told the members of the woman's family, "I can see no reason why I cannot make her a well woman." He continued to treat the poor woman and received reports regarding her condition up to within two weeks of her death, and until the last appears to have insisted that the poor woman was improving.

The attorney for the Lowell *Sun* introduced a number of reputable physicians as witnesses. Four Detroit physicians, who had investigated the Koch "treatment," went to Lowell to testify: Drs. Frank A. Kelly, James E. Davis, J. T. Watkins and Clarence Owen. In addition, Drs. Timothy J. Leary, Marshall L. Alling, Charles Shanks and George H. Bigelow also appeared for the defense. One of the most important witnesses was Dr. Joseph Colt Bloodgood, who was badgered by Dugdale's attorney in a manner common to such trials. Dr. Bloodgood was asked whether he was known as the "publicity agent for the A. M. A.," whether he was being paid for appearing in the case, whether he received any compensation from the American Medical Association, and whether he expected to get his expenses. Dr. Bloodgood assured the attorney for Dugdale that he did not receive compensation from the American Medical Association, that he was not the publicity agent for the A. M. A., that he would not accept any pay for coming to Lowell to testify, and that there had been no promise even to pay his traveling expenses.

In addition to the purely medical testimony, there was also some interesting testimony from Mr. Austin Lescarboura, former managing editor of the *Scientific American*, on the physical characteristics of the Albert Abrams "mystery box"—the so-called oscilloclast. Mr. Lescarboura was one of several



Greatly reduced reproductions of some of Dugdale's advertising — letterhead, rheumatism-cure booklet and advertisements, Abrams' "electronic reactions," and his own alleged cancer cure.

experts who, some years ago, made a thorough examination, from the physical point of view, of Abrams' hocus-pocus. He brought out that the committee of which he was a member made extensive and exhaustive tests to determine the physical phenomena claimed for it. The sum and substance of the findings of this committee were to the effect that there was no basis in fact for any of the Abrams claims in this matter. Mr. Frank Goldman, the attorney for the Lowell *Sun*, in his closing arguments, characterized Dugdale as a quack. Mr. John J. Higgins, Dugdale's attorney, apparently admitted the fact when he retorted that even a quack could be libeled as well as another man.

Not the least interesting feature of the entire case was the complaint on the part of Dugdale's attorneys, as quoted in the published reports of the suit, that Koch, whose alleged cancer cure was administered by Dugdale, "had run out on us" and refused to come to Lowell to testify.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

CARBON MONOXIDE POISONING

To the Editor:—Recently I was called to see a man lying dead in front of his garage. He had been discovered in the garage seated in his automobile, the engine running, and had been dragged out probably dead. The small side door of the garage was about half way open and the main doors were closed, he presumably having gone in to test the engine. There was no reason to suspect suicide and after careful investigation the coroner's physician granted a death certificate giving the cause as carbon monoxide poisoning due to inhalation of exhaust gases from the automobile engine. I had examined this man at fairly regular intervals during the past ten years, for check up on his physical condition, and had never found any organic or even minor disturbances. The last examination was about six months before his death. 1. What are the conditions at necropsy in carbon monoxide poisoning? 2. What changes can be found in the blood of a person dead of this condition; how soon would such blood examination have to be made after death and what are the tests applicable in such a case? 3. Are there any known external evidences of the skin, mucous membrane or the eyes of such a victim, or any known evidence that might clinch a positive diagnosis as to the cause of death from exhaust gas poisoning from an automobile engine? 4. Granted that the small side door of this garage was open at least half way, would gas accumulation be sufficient to be lethal?

M.D., New Jersey.

ANSWER.—1. After death from carbon monoxide poisoning the surface of the body is usually pinkish or red, which is more pronounced in the dependent parts. The blood is usually fluid, coagulates slowly, and is cherry red. The mucous membranes in the pharynx and stomach may be reddened. There may be small hemorrhages into the pleura, also pulmonary edema with bright red froth exuding from the cut surface of the lung. In typical cases all tissues are redder because of carbon monoxide hemoglobin. There may be, especially after prolonged breathing of carbon monoxide, punctiform hemorrhages and softening in the brain, particularly in the lenticular nucleus. It has been said that after monoxide poisoning from automobile exhaust gas there may be little change in the skin, because it is thought that death may have occurred rapidly.

2. The essential change after death from monoxide poisoning is the presence of carbon monoxide hemoglobin, which may be detectable for some time. The test relied on principally by the United States Bureau of Mines is based on the fact that when normal blood diluted with water is mixed with a solution of tannic and pyrogallic acids a light brown suspension is formed in a few minutes, while blood containing carbon monoxide hemoglobin forms a light carmine suspension. The percentage of saturation of carbon monoxide in the blood can be determined by using a set of standards of different colors corresponding to known amounts of carbon monoxide in combination with hemoglobin. This apparatus, which is simple enough to be used without special training, may be obtained from the Mines Safety Appliance Company, Pittsburgh.

3. This question is covered largely by answers 1 and 2. So far as is known, the actual cause of death from exhaust gases from automobile engines is poisoning by carbon monoxide.

4. While the question cannot be answered definitively on the basis of the information at hand, it is altogether reasonable to conclude that fatal monoxide poisoning might develop under the condition described. It should be borne in mind, however, that no one can tell the internal conditions of a dead body without a proper postmortem examination.

The symptoms and signs of carbon monoxide poisoning in garages do not differ, so far as known, in any essential from the symptoms and signs of carbon monoxide poisoning under other conditions. A recent article bearing directly on the case described by the correspondent is by William D. McNally (Sixty-Three Deaths from Carbon Monoxide Poisoning in Private Garages, *Archives of Pathology* **5**:43[Jan.] 1928). Public Health Bulletin 195, 1930, by R. R. Sayers and Sara J. Davenport, gives a good review of carbon monoxide poisoning; this bulletin can be obtained for 20 cents from the Superintendent of Documents, Government Printing Office, Washington, D. C. A valuable report is that of the Committee on Poisonous Gases of the American Medical Association, "Dangers of Carbon Monoxide Poisoning and Measures to Lessen These Dangers," THE JOURNAL, Jan. 18, 1930. (Reprints may be obtained on receipt of 15 cents.)

TREATMENT OF ELONGATION OF COLON

To the Editor:—I have a patient whose descending colon is one and one-half times as long as it should be, the abnormal length forming a loop. Symptoms are of Glenard's disease with constipation and a tendency toward infection of feces in the loop and obstruction. Will you kindly supply me with definite dietary and other aids in treatment. I should also like to know the relative frequency of the condition. The man was told to have the loop removed but I have advised against such a procedure at present. Print inquiry if you wish, but please use initials only.

M.D., Pennsylvania.

ANSWER.—The condition described is frequent enough to be a rather common occurrence in routine gastro-intestinal roentgen examinations. Unless there are symptoms present, the general opinion seems to be that no treatment is necessary. Certainly surgery should not be instituted, at least until after a thorough and efficient medical regimen. The usual methods of handling visceroptosis are advisable. The patient is generally put at bed rest with the foot of the bed elevated. If, as is usually the case, the patient is undernourished, food is urged to the point of a definite gain in weight. In the beginning, the bowels are handled with enemas of olive oil. After from two to three weeks of bed rest the patient is allowed up, and passive and active exercises are instituted to increase the tone of the abdominal walls. At this time a diet should be arranged to remove the constipation. Different physicians employ different kinds of anticonstipation diets. McLester's "Nutrition and Diet in Health and Disease" may be referred to for further assistance in the diet.

TREATMENT OF PERSISTENT CONJUNCTIVAL INFECTION

To the Editor:—Will you kindly venture a conjectural diagnosis of the following ophthalmic case, which has baffled the physicians of two cities, the patient being now virtually blind as a result: About six weeks ago a man, aged 66, in good health, came to me with what appeared to be rather severe conjunctivitis of the left eye. The usual treatment with silver nitrate, mercurochrome-220 soluble, ethylhydrocupreine, mild silver protein, zinc, milk injections and other remedies failed to halt the disease. Atropine was promptly added and almost daily reports from the laboratory here were that no germ of any description could be found in the secretion. This report has continued to come from every bacteriologic examination, both here and elsewhere (Richmond, Va.). In about ten days the right eye began with similar conjunctivitis with dilated pupil as if secretion from the left eye might have crossed over the bridge of the nose during sleep and infected the right eye. Infection was not thought possible, however, as no germ could be found, and hence the right eye had not been sealed. The inflammation, uncontrolled, gradually involved the intra-ocular structures of both eyes. Corneal ulcerations developed on both eyes, apparently through the constant winking of the lids, which seemed to macerate the epithelium after ten days or two weeks. The conjunctivae were red and thickened now and pus apparently streamed from the eyes. The secretion from both eyes has flowed continuously and seemingly independent of any treatment with antiseptics. As stated, the inflammation has gone on from the outset from bad to worse until now the patient can only tell light from darkness. The pus is still running, with the lower lids greatly thickened and everted as if Nature were now attempting in this belated way to favor drainage of pus away from the cornea of both eyes. The ulcers have become quiescent, having healed to a great extent, but the pupils have ceased to respond to atropine and the patient has reached a helpless state. There is a history of gonorrhea but no active urethritis at present. The patient is a bachelor. Could this be a metastatic infection? We have pulled all his teeth, which were bad. There is no albumin, sugar or other irregularity. The Wassermann reaction is negative. The patient is a railway conductor who has been occupied in the same way every day for forty years. He does not use drugs or handle animals. Must atropine be continued? I ceased atropine about ten days ago. Please reply at once and give what help in the way of suggestions you can.

M.D., Virginia.

ANSWER.—There are certain forms of conjunctivitis in which none of the well known pathogenic organisms are concerned but seem to be due to a filtrable virus. The most common of

these is the so-called inclusion blennorrhea of the new-born. But, in these, corneal ulceration never occurs except as a secondary infection, which is most probable in this case. The likelihood is that the corneal epithelium was macerated by the lakes of pus that were present and through the damaged epithelium there entered into the cornea organisms of a secondary type, most likely staphylococci and streptococci. Atropine should be continued as long as there is still evidence of inflammation. It is probable that foreign protein in shock-producing doses would be of benefit. Frequent irrigations of the conjunctiva with the continued use of silver nitrate are definitely indicated as long as there is a purulent secretion. If the conjunctiva is still so edematous that it protrudes between the lids, ice applications are in order until the edema subsides.

TREATMENT OF PERSISTENT POSITIVE WASSERMANN REACTION IN SYPHILIS

To the Editor:—Will you kindly advise me what to do in the following case: A four plus Wassermann reaction was discovered during a general physical examination. I gave the patient thirty-three neoarsphenamine, three arsphenamine, fifteen sulpharsphenamine, twelve bismuth and fifty-four mercury treatments between Jan. 15, 1928, and July 15, 1930. The Wassermann reactions were 4 plus, 4 plus, 3 plus, 2 plus and 3 plus. He never showed any symptoms referable to syphilis. He has some albumin in his urine, pain over the kidney region and an exfoliative dermatitis over the palms and the soles. This is due to the arsenic. Shall I continue with antisyphilitic treatment? If so, what shall I use?

HARRY HALLARMAN, M.D., New York.

ANSWER.—At present the patient needs rest, general supportive treatment and possibly intravenous injections of sodium thiosulphate. The urine should be watched carefully. After recovery from the toxic reaction, the spinal fluid should be examined. If this gives positive results, fever therapy with typhoid vaccine or malaria is indicated. If the spinal fluid examination and clinical tests give no indication of central nervous involvement, moderate treatment with bismuth and iodides may be given, with considerable rest intervals. The persistent Wassermann reaction will have to be ignored. Treatment will protect against serious damage from the syphilis.

DEXTROSE AND SALINE SOLUTION BY HYPODERMOCLYSIS

To the Editor:—Is there any reason why dextrose and physiologic solution of sodium chloride should not be given together by hypodermoclysis when indicated? Is there any chemical reaction that would be harmful to the body? Would a 10 per cent solution of dextrose be likely to cause a slough? W. C. STANBERRY, M.D., Charleston, Tenn.

ANSWER.—There is no harmful chemical reaction; but the osmotic tension needs to be adjusted so as not to have it become excessive. When dextrose is added to the saline solution it will, of course, raise the osmotic tension. A 5 per cent solution of dextrose is approximately isotonic with blood serum. Mixing equal quantities of isotonic dextrose solution and of physiologic solution of sodium chloride yields an isotonic solution. Nevertheless, dextrose solution is not as well borne by the subcutaneous tissue as is physiologic solution of sodium chloride; and 10 per cent solution, being hypertonic, may possibly cause sloughing. It is better to give dextrose solution intravenously or intramuscularly rather than subcutaneously.

DERMATITIS FROM SOAP AND CLEANSING WITHOUT IRRITATION

To the Editor:—I have a patient with an eczematoid eruption on the dorsal surface of both hands, extending in between the fingers. The configuration of the eruption suggested a ringworm infection and I thought I found spores on one microscopic examination; but subsequent examinations have not confirmed this finding and it has not responded satisfactorily either to the use of kerolysin (Upjohn) or to ultraviolet irradiation. The patient is a linotype operator. The only possible occupational irritant which I can discover is Lava soap, which she uses freely in cleansing her hands. Perhaps the ink might also be considered. Could you give me any information as to the composition of this soap and whether any of the ingredients would be especially irritating? If so, could you suggest a less irritating cleansing agent? Please omit name if published in THE JOURNAL. M.D., California.

ANSWER.—There is probably no soap that will not produce a dermatitis in some individual. It is not possible to determine any ingredient in the Lava soap which might be particularly irritating. A good castile soap is usually as little irritating as any.

When the hands are much inflamed they can be cleansed as follows: Rub olive oil into the hands until they are saturated and some excess is left on; then massage into this one or two eggs as necessary to make an emulsion. When this emulsion has been thoroughly rubbed all over the hands, rinse with tepid water and dry. This particular method cleanses the hands thoroughly and leaves a thin film of oil for protection.

DANGER FROM METHANOL AS SKIN RUB

To the Editor:—In the controversy between the producers of denatured ethyl alcohol and the producers of methanol, both the distilled and the synthetic product, in connection with the use of this substance in antifreeze mixtures, the implication has been made that methanol is not absorbed through the skin, or at least no toxic results arise as the result of skin contact, and that methanol might be used as a body rub. I request to be advised as to the facts in the situation. Please omit name. M.D., Ohio.

ANSWER.—When methanol is used as a body rub in place of ethyl alcohol, some of the vapor is inhaled. There is some evidence that methanol may be absorbed through the skin. While acute poisoning from the external use of methanol is unlikely, such use is decidedly inadvisable. Methanol is further discussed in an editorial entitled "Another Gas Hazard," in THE JOURNAL, August 30.

"IN-NO-SCENT" AND "THE EXPERT"

To the Editor:—1. Kindly advise me regarding a proprietary deodorant known as "In-No-Scent," which a patient has asked me about. 2. I would also like to know about a pamphlet called "The Expert," published by the Riverside Press of St. Paul, giving names of specialists in various lines. Is their publication reliable and do they carry out their contract? Please do not publish my name in THE JOURNAL if these questions and answers are published. K. B. S., M.D., Connecticut.

ANSWER.—1. We have no information about or record of "In-No-Scent." If it is a product sold for controlling sweat excretion in local areas, such as the axilla, it is likely to contain some salt of aluminum, the basis of most products of this type.

2. We have seen no recent issue of "The Expert." It used to be published by the Imperial Information Bureau of St. Paul and purported to list "Eminent Surgeons, Physicians and Specialists" in various parts of the country. These eminent individuals were classified by groups, such as "Surgeons," "Internists," "Specialists in Nervous and Mental Diseases," "Specialists in Skin and Genito-Urinary Diseases," "Oculists and Aurists," and "Obstetricians." Just what one had to do to qualify as an "expert" for inclusion in the booklet is not quite clear. According to information received, the payment of a fee to the publishers appeared to have some bearing on the matter of eligibility. As long ago as March 27, 1909, THE JOURNAL published a protest from a physician in Detroit, who objected to having his name appear in "The Expert." The *Southern Medical Journal* in 1913 contained an editorial in its September issue on the same subject under the title, "Easy Mark Doctors." In June, 1913, the local medical society of Jacksonville, Fla., passed resolutions condemning the publication.

MENINGOVASCULAR SYPHILIS

To the Editor:—I have a young woman patient who developed meningovascular syphilis one year after the initial lesion. After continuous and, at intervals, energetic treatment, the laboratory reports on fluid and serum are negative. However, neurorecurrences persist, and the patient is totally incapacitated a large portion of the time, pain being the dominant factor. If treatment is properly carried forward, how soon may I expect a remission of the more distressing symptoms? Please omit name and address. M.D., Texas.

ANSWER.—Syphilis is such a chronic disease, its nervous manifestations are so difficult to treat, and its symptoms are so protean that no definite statement can be given as to how soon any given patient might be relieved of any group of symptoms. One can only continue the usual therapeutic measures, treat his patient symptomatically at the same time and hope for the best. The physician must be sure that in a syphilitic patient he is not dealing with symptoms caused by other quite different conditions.

REMOVAL OF WARTS

To the Editor:—Is there any known cause for little elongated warts that occur on the face and body and is there internal treatment for them? R. F. SHEETS, M.D., Carthage, Ill.

ANSWER.—Ordinary warts sometimes grow long, but the long ones are few among many flat warts. It is assumed, therefore, that the warts referred to are the tiny soft pedunculated fibromas often seen on the neck and about the axillae. The cause is not known, nor is there any internal treatment to benefit them. Clipping them off cures them.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

CALIFORNIA: San Francisco and Los Angeles, Dec. 10, 1930. Reciprocity examinations. Sec., Dr. C. B. Pinkham, 420 State Office Bldg., Sacramento, Calif.

IOWA: Des Moines, Dec. 2-4, 1930. Dir., Mr. H. W. Grefe, Iowa Dept. of Health, Des Moines, Iowa.

KANSAS: Topeka, Dec. 9, 1930. Sec., Dr. A. S. Ross, Sabetha, Kan.

MARYLAND: Regular, Baltimore, Dec. 9-12, 1930. Sec., Dr. H. M. Fitzhugh, 1211 Cathedral St., Baltimore, Md. Homeopathic, Baltimore, Dec. 9, 1930. Sec., Dr. J. S. Garrison, 517 Old Orchard Rd., Ten Hills, Baltimore, Md.

NEBRASKA: Lincoln, Nov. 20-22, 1930. Sec., Mr. Ernest M. Pollard, Lincoln, Neb.

OHIO: Columbus, Dec. 1-4, 1930. Sec., Dr. H. M. Platter, 85 E. Gay St., Columbus, Ohio.

TEXAS: Waco, Nov. 18-20, 1930. Sec., Dr. T. J. Crowe, 918-19 Mercantile Bank Bldg., Dallas, Texas.

UTAH: Salt Lake City, Dec. 15 and 16, 1930. Dir., Mr. S. W. Golding, 326 State Capitol Bldg., Salt Lake City, Utah.

VIRGINIA: Richmond, Dec. 9-12, 1930. Sec., Dr. J. W. Preston, 803 Medical Arts Bldg., Roanoke, Va.

WEST VIRGINIA: Morgantown, Nov. 20, 1930. Sec., Dr. W. T. Henshaw, Charleston, W. Va.

WISCONSIN: Milwaukee, Dec. 13, 1930. Basic Science. Sec., Prof. R. N. Bauer, 3410 Wisconsin Ave., Milwaukee, Wis.

Michigan June Report

Dr. F. C. Warnshuis, secretary of the Board of Registration in Medicine of Michigan, reports the written examination held at Ann Arbor, June 10-12, 1930, and Detroit, June 16-18, 1930. The examination covered 14 subjects and included 100 questions. An average of 75 per cent was required to pass. Two hundred and seventy-three candidates were examined and passed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
College of Medical Evangelists		(1930)	83.9, 84, 84*
George Washington University Medical School		(1904)	83.6*
Loyola University School of Medicine		(1930)	82†, 83†
Northwestern University Medical School		(1930)	81.7, 86‡
Rush Medical College		(1928)	83.7, (1929) 85, (1930) 81, 81.5‡, 82, 82, 83, 83‡, 84, 84.8‡, 86‡, 86‡
Indiana University School of Medicine		(1928)	84*
Tulane University of Louisiana School of Medicine		(1929)	82*
Johns Hopkins University School of Medicine		(1928)	86
Harvard University Medical School		(1925)	84*, (1927) 86*, (1928) 82.7, 87.1
Tufts College Medical School		(1930)	82.6
Detroit College of Medicine and Surgery		(1930)	81‡, 82‡, 83‡, 83‡, 84‡, 84‡, 84‡, 84‡, 84‡, 84‡, 84‡, 84‡, 84‡, 84‡, 84‡, 84‡, 85‡, 85‡, 85‡, 85‡, 85‡, 85‡, 85‡, 85‡, 85‡, 85‡, 86‡, 86‡, 86‡, 86‡, 86‡, 86‡, 86‡, 86‡, 86‡, 86‡, 87‡, 87‡, 87, 88‡, 88‡, 88‡, 88‡
Saginaw Valley Medical College		(1900)	86§
University of Michigan Medical School		(1903)	86§, (1928) 83.7*, 83.8, (1929) 80.7, 81.1, 82.7*, 83.5*, 88, (1930) 77.8, 79, 79.7, 80.6, 80.6, 81.1, 81.3, 81.7, 81.7, 82, 82.1, 82.1, 82.2, 82.6, 82.7, 82.8, 82.8, 82.8, 83, 83, 83.1¶, 83.2, 83.3, 83.4, 83.5, 83.5, 83.5, 83.6, 83.7, 83.7, 83.7, 83.7, 83.8, 83.8, 83.8, 83.9, 83.9, 84, 84, 84, 84.1, 84.2, 84.3, 84.3, 84.3, 84.3, 84.4, 84.4, 84.4, 84.5, 84.5, 84.6, 84.6, 84.7, 84.7, 84.7, 8.7, 84.7, 84.8, 84.9, 84.9, 84.9, 85, 85, 85.2, 85.2, 85.3, 85.3, 85.3, 85.3, 85.4, 85.4, 85.4, 85.5, 85.5, 85.5, 85.5, 85.5, 85.5, 85.6, 85.6, 85.6, 85.7, 85.7, 85.7, 85.7, 85.7, 85.7, 85.8, 85.9, 85.9, 85.9, 85.9, 85.9, 86, 86, 86.1, 86.1, 86.1, 86.1, 86.2, 86.2, 86.2, 86.2, 86.2, 86.3, 86.3, 86.3‖, 86.4, 86.4, 86.4, 86.5, 86.5, 86.5, 86.5, 86.5, 86.6, 86.6, 86.6, 86.6, 86.6, 86.6, 86.7, 86.8, 86.9, 86.9, 86.9, 87, 87, 87*, 87.2, 87.2, 87.3, 87.3, 87.4, 87.5, 87.5, 87.6, 87.6¶, 87.7, 87.7, 87.8, 87.8, 87.9, 88.2, 88.3, 88.3, 88.5, 88.6, 88.9, 89, 89.2
St. Louis University School of Medicine		(1930)	82.7, 84
University of Minnesota Medical School		(1930)	82
University of Buffalo School of Medicine		(1929)	80
Jefferson Medical College		(1927)	81.9, (1928) 82*
University of Wisconsin Medical School		(1929)	85.3*
Queen's University Faculty of Medicine		(1923)	84*, (1929) 81.7, 83
University of Alberta Faculty of Medicine		(1929)	85
University of Toronto Faculty of Medicine		(1926)	82, (1928) 80.5, 82.4, 84, (1929) 83.4*, 83.5*, 84.7*, (1930) 85, 86
University of Western Ontario Medical School		(1907)	77.6*, (1929) 83, 84, 86, (1930) 83, 83, 84, 85, 85, 86, 86
University of Budapest Faculty of Medicine		(1916)	84‖

* License issued.

† This applicant has completed four years' medical work and will receive an M.D. degree on completion of one year's internship in a hospital.

‡ This candidate has received an M.B. degree and will receive an M.D. degree on completion of one year's internship in a hospital.

‡ This applicant has received a four-year certificate and will receive an M.D. degree on completion of one year's internship in a hospital.

§ Permitted to write examination to satisfy personal ambition — no license issued.

¶ Degree withheld until applicant passes comprehensive examination and the license is withheld until one year after presentation of M.D. degree.

‖ Verification of graduation in process.

Dr. Warnshuis also reports a special examination held at Detroit, Jan. 13, 1930. The examination covered 14 subjects and included 100 questions. An average of 75 per cent was required to pass. Four physicians were examined and passed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
Johns Hopkins University School of Medicine		(1917)	83.2
Michigan College of Medicine and Surgery		(1906)	75
Medical Faculty of Trinity University, Toronto		(1892)	76
Royal College of Physicians and Surgeons, England		(1922)	86

Book Notices

ANATOMY OF THE HUMAN BODY. By Henry Gray, F.R.S. Twenty-second edition thoroughly revised and re-edited by Warren H. Lewis, B.S., M.D., Professor of Physiological Anatomy, Johns Hopkins University, Baltimore, Md. Cloth. Price, $10. Pp. 1391, with 1232 illustrations. Philadelphia: Lea & Febiger, 1930.

William Gray, the author of this textbook of anatomy, died of smallpox at the age of 34. He saw only the first edition of his book, published in 1858, which consisted of 750 pages and contained 363 illustrations. His work was done so well that it has lived through twenty-two editions and still contains many of the original illustrations and much of the original text. The editors have endeavored to adhere to the original plan and have supplied only such changes as advances in science made necessary in order to put at the service of students the latest accessions to anatomic knowledge. Among the great advances made since the first American edition appeared in 1859 have been those in microscopic anatomy and the anatomy of the embryo. New material on these subjects has come to occupy a considerable portion of the text, although the main portion has always remained primarily a descriptive anatomy of the human body. In this edition the section on the central nervous system has been revised. New material has been added on the physiologic anatomy of various organs. New illustrations have been added and many old ones have been replaced. The nomenclature, as in previous editions, has remained in English, and important references to the literature have been added at the end of each section. The publishers have done well to provide a volume used so much by students that will remain open and flat at almost any page.

AN INTRODUCTION TO THE STUDY OF HUMAN ANATOMY. By Robert James Terry, A.B., M.D., Professor of Anatomy in Washington University. Cloth. Price, $3.50. Pp. 346. New York: Macmillan Company, 1929.

Dr. Terry is professor of anatomy at the Washington University School of Medicine, St. Louis, and associate editor of the *American Journal of Physical Anthropology*. This volume is a student's guide in the dissecting room. The laboratory method is emphasized, with many new methods of procedure and demonstration. Descriptive text is omitted. The author recommends two modes of inquiry in the study of gross structure of the human body. The student follows the direction in his laboratory study of the cadaver as a source of his knowledge, and the evidence of demonstration is to be verified by the description given in a good textbook on anatomy. The process of inquiry in learning human structure by the laboratory method is augmented by direct individual investigation. Problems are assigned in rotation to students and the observations made are recorded on special form sheets. The directions for laboratory work cover five sections, each of which represents a part of the body commonly designated in the assignments of a dissecting room. Collateral reading is stressed by the author as an important part of training and he has appended reading references for each anatomic unit assigned for study. At the close of each chapter are found recommendations for study which is to be carried on outside the laboratory—in the library, at the dispensary, in the pathologic museum and especially in the necropsy room. The Basle Anatomic Nomenclature in both Latin and English is consistently used. The author's aim is to develop in the student a sense of investigation which will make him an independent worker. The book will be found valuable to teachers not alone because of the succinct directions given for successive steps in the section but

also because of the new pedagogic angle of approach to study. By faithfully following this method of teaching the student will not lose interest in the accurate investigation of facts. He will gain the proper perspective by orientating this anatomic knowledge in a relation to the various departments of biology, medical science and other subjects correlated with anatomy. The two procedures, verification and original observation, provide the main foundation of the student's knowledge of an anatomic method and subject method such as has been well worked out in this introduction to the study of human anatomy.

PLARR'S LIVES OF THE FELLOWS OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND. Revised by Sir D'Arcy Power, K.B.E., F.R.C.S., Hon. Librarian Royal College of Surgeons, with the Assistance of W. G. Spencer, O.B.E., M.S., F.R.C.S., and Professor G. E. Gask, C.M.G., D.S.O., F.R.C.S. Volume I and Volume II. Cloth. Price, 42/— net. Pp. 752 and pp. 596. London: John Wright & Sons, Ltd., 1930.

This volume is unusual among biographies. Here are the records of the surgeons of the old school who carried on during that brilliant period of English operative surgery instituted by Lister. The actual achievement of this publication is accredited to Lord Moynihan, who acted on the suggestion of Sir John Bland-Sutton. It was realized in printed form through the gift of £5,000 by the late Mr. Thelwal Thomas, to whom the volumes are a memorial. The dedication is rightfully given to Mr. Victor Plarr, librarian of the college whose obituary records form the basis of the work. Following a memoir of Plarr is a transcript of the charter of the Royal College of Surgeons and a list of the 300 surgeons elected as fellows in 1843. Credit must be given the editor, Sir D'Arcy Power, and his collaborators, Walter Spencer and Prof. G. E. Gask, for their painstaking compilations.

The work includes the biographies of 2,600 members elected since the establishment of the college in 1843. Supplementary editions will be issued at ten year periods. The records of members from 1745 to 1843 are yet to be done. The two volumes give complete information of that "great majority, more ambitious than their fellow students, who took the qualifications in surgery, and who used their talent, not only professionally, but often performed public duties, as well as those whose memorial consists of no more than a brief obituary notice." When possible the individual's professional history is completed with pen pictures of his appearance, traits of character and idiosyncrasies. Mention is made of the activities of fellows outside their profession; many were men of varied attainments who brought their zeal to bear on sciences other than surgery, and many were noted as appreciative of the beauties of nature and lovers of the arts.

The biographies are replete with the testimonials of friends, honors received, hospital and university connections and lists of their publications, and the whole is freely spiced with anecdote. There pass in review such surgical pathologists as Edward Stanley, William Lawrence, Sir James Paget and Sir William Savory; men who devised brilliant departures in surgical procedure as Arthur E. J. Barker, who established the early diagnosis and operation for intussusception and who pioneered, as did Francis Woodhouse Braine, in placing local anesthesia on a firm scientific basis. There were men such as Forbes Frazer, who worked in the cause of medical union, and Sir John Simon, the maker of modern sanitary science in England. There was the great war surgeon Sir Anthony Bowlby, and John Wyley of the Indian Service. Such daring experimentalists as James Edward Adams, who transfused his own blood into the veins of a patient in collapse, Sir Victor Alexander Horsley, who made fifty hazardous self-demonstrations of anesthesia and who contributed so much to knowledge of the pathology of the nervous system, and James Syme, the boldest and most original surgeon of the era preceding the introduction of anesthesia are made to live again. Adequate space is given the men who devised technics of historic importance. Among others were Sir Benjamin C. Brodie, who popularized the method of lithotrity in England; Charles A. Key, who was the first to ligate successfully the subclavian artery for the cure of axillary aneurysm; Odilon Marc Lannelongue, the first surgeon in France to open the skull for the relief of the compression of the brain; Macewen, who invented the operation of linear osteotomy, and Lawson Tait for his procedures in abdominal surgery. The lengthy biography of Sir Frederic Treves embraces an epitome of the history of surgery of intestinal obstruction and appendicitis. Readers cannot but be inspired by the lives of men who advanced systematic scientific research such as Joseph Blake, who migrated to America and at St. Louis was among the first to introduce animal experimentation in the western country; Sir William Bowman, "the father of general anatomy in England," and Theodor Kocher, who was the first advocate of Lister's methods in Switzerland. The detached references to education in the Victorian, Edwardian and early Fifth Georgian eras would be incomplete without credit to such teachers as Sir George Murray Humphry, who converted the insignificant medical school at the University of Cambridge of 1866 into one that is world renowned; Thomas Huxley, who was one of the founders of the school from which biology came as a science; and Thomas Wharton Jones, the distinguished ophthalmologist "whose work marks, with Waller, the beginning of modern scientific physiology in England." Prominent figures in English medical history were also Sir Jonathan Hutchinson, a medical genius superior in his knowledge of the history of medicine, and Sir James Paget, who linked the surgery of John Hunter with that of the present day. Joseph Lister was elected a fellow of the Royal College of Surgeons in 1860 and delivered the Croonian lecture in 1863, taking as his subject "The Coagulation of the Blood." In 1869, he published his "The Antiseptic Method of Treating Compound Fractures and the Use of Catgut Rendered Aseptic by Carbolic Acid Ligatures." More than ten pages are devoted to the epochal experiments of Lister, who "revolutionized the art of surgery and started an indefinite extension by inventing the first method through which a surgeon was able with certainty to prevent inflammation from disturbing nature's healing of a wound." Here is the whole story of Lister's fight to obtain a hearing in the face of the prejudices of his senior surgeons.

Intimate knowledge is given of the personalities of men who have contributed definitely to the scientific advancement of the world. The publication will doubtless find a welcome response from readers who are interested in the progress of surgery from the introduction of anesthesia and antiseptics to the asepsis of today.

DISCOVERIES AND INVENTIONS OF THE TWENTIETH CENTURY. By Edward Cressy. Third edition. Cloth. Price, $4.25. Pp. 476, with 342 illustrations. New York: E. P. Dutton & Company, 1930.

Subsequent to the publication of the first edition of this book in 1914 the World War stimulated research and discovery in many directions. Moreover, the volume has become a classic work of reference. This edition covers such new subjects as artificial silk, television and phototelegraphy. The chapters of special interest to physicians are those on electricity, artificial production of cold, chemistry and radium. The illustrations are well printed and the index is good.

LE DIABÈTE SUCRÉ SON TRAITEMENT. Par P. A. Carrié, médecin des Hôpitaux de Paris. La pratique médicale illustrée. Directeurs Professeur E. Sergent, R. Mignot et R. Turpin. Paper. Price, 20 francs. Pp. 94. Paris: G. Doin & Cie, 1930.

It is a general fault of articles in the French literature that practically no attention is paid to the matter of bibliography. Carrié's treatise is no exception, and this detracts considerably from the value of the book to those who may wish to go to original sources for confirmation of the statements made in the text. Such neglect of the literature gives the impression that the authority of the professor's spoken word is supreme in France and that the critical questioning of authority, which has developed particularly in Germany and America and is so stimulating to progress, is sadly lacking there. A few errors are noted. The author, for instance, in a footnote infers that alcohol is converted into sugar. He also contrasts the ketogenic antiketogenic ratio 2/1 of Shaffer with the 4/1 ratio of Ladd and Palmer, overlooking the fact that Shaffer's ratio is one of molecules of fatty acid to molecules of dextrose, whereas Ladd and Palmer are expressing the proportions in terms of grams of fat to grams of carbohydrate. Recalculated into molecules, Ladd and Palmer's ratio is essentially the same as that of Shaffer. It is also evident from the context that the author has not comprehended the fact that these ratios are

significant only as they express the proportions of the various food factors actually metabolizing. The ratio of the factors in the diet will only be the same as that of foods metabolizing when none of the food eaten is stored and all caloric requirements are perfectly satisfied. The treatment of coma, from the point of view of many American clinicians, is inadequate. The use of alkali is reserved for cases when insulin is temporarily unobtainable and little or no attention is paid to the important question of providing fluids to combat dehydration. The consideration given the question of diabetes in pregnancy is not satisfactory. Increasing severity as pregnancy progresses is not a common observation; on the contrary, in many instances the tolerance increases in the later months of pregnancy and continues high during lactation. Nor can one agree with the unqualified statement that nursing the infant aggravates the mother's diabetes. Despite these few objections the treatise is an excellent presentation of a method of treating diabetes, which resembles closely that in use in the leading American clinics, a method in which empiricism has been replaced by a scientifically adjusted dietary and the precise use of the now available substitution therapy.

EPHEDRINE AND RELATED SUBSTANCES. By K. K. Chen, Department of Pharmacology, Johns Hopkins University, and Carl F. Schmidt, Department of Pharmacology, University of Pennsylvania. Medicine Monographs, Volume XVII. Cloth. Price, $2.50. Pp. 121. Baltimore: Williams & Wilkins Company, 1930.

This volume is a medical monograph that deals with the subjects indicated in the title. It therefore is a digest of the literature rather than a record of the authors' researches. The text is up to date, is well written, and should be of value to those interested in the subject. It is particularly fitting that the authors are the discoverers of the physiologic action that has raised ephedrine from obscurity to its place of importance in medicine. An excellent bibliography adds to the value of the volume.

THE CANCER PROCESS. By J. J. M. Shaw, M.A., M.D., F.R.C.S.E. Paper. Price, 1/— net. Pp. 16. Edinburgh: E. & S. Livingstone, 1930.

From available publications by deduction the author arrives at the conclusion that cancer is produced by the prolonged contact of living tissue and any substance that is viscous, insoluble in tissue fluids, and toxic. The hyperplasia induced is of a protective nature. These substances imitate in their action the fibrinous exudate that is responsible for the multiplication of cells in repair and after conception, the intermediate mechanism being an affinity of potassium for vitiated cytoplasm and a resulting imbibition of fluid. Because of the ability of potassium in cells to change gamma rays to beta rays, he is led to the view that intensification of gamma rays outside the body will develop increased secondary beta radiation, which will inhibit and destroy the proliferating cells. It now remains to produce evidence that this conception gets somewhere practically.

EDWARD JENNER AND THE DISCOVERY OF SMALLPOX VACCINATION. By Louis H. Roddis, Lieutenant Commander, Medical Corps, United States Navy. Cloth. Price, $1. Pp. 155, with illustrations. Menasha, Wisconsin: George Banta Publishing Company, 1930.

This essay is a most satisfactory sketch of Edward Jenner. A consideration of smallpox inoculation is introduced at the beginning of the book and discussed in its historical bearings. Of especial interest to Americans is a reprinting in Chapter III of "Some Account of the Success of Inoculation for the Smallpox in England and America," published in London in 1859 by Benjamin Franklin. This includes "Plain Instructions for Inoculation in the Small-Pox," prepared by William Heberden. The author writes in an interesting manner of Jenner's early years and education, of his long years of arduous labor as a country practitioner, of his observations in natural history under the inspiration of John Hunter, and of his efforts to write poetry. The story of vaccination from the first observations in Gloucestershire until the practice had spread over the world is related in a connected manner. The introduction of a few pictures and numerous letters gives a strong personal tone and add much to the interest of the story. An excellent bibliography, a chronology of the principal events of Jenner's life, and a list of Jenner's published works close the essay. Some interesting statistics bearing on vaccination are included in the appendix. It is fortunate to have a readable life of Edward Jenner built on extensive research and study of original materials from which the author has judiciously selected such portions as are vital and instructive. The appearance and excellence of this volume remind one of other short biographies, such as Osler's "Thomas Linacre" and Riesman's "Thomas Sydenham," and like them it will furnish a pleasant and profitable hour to those who read it.

THÉRAPEUTIQUE MÉDICALE. I. MALADIES DU TUBE DIGESTIF. Par Maurice Lœper, professeur de thérapeutique à la Faculté de médecine de Paris. Avec la collaboration du Dr. André Lemaire, chef de laboratoire à la Faculté. Paper. Price, 50 francs. Pp. 369, with 45 illustrations. Paris: Masson & Cie, 1930.

"The world of man," says Loeper, "is divided into two classes: those who believe in therapeutics and those who mock it." Inferentially, this book is intended to lessen the number in the latter class. It is the first volume of a series planned by the author to cover successively the therapy of the various other organs and systems. This volume deals with the therapeutics of the various functional subdivisions of the alimentary tract, especially from the standpoint of the remedies employed. The author's studies lead him to believe that bitters not only have a reflex effect in increasing gastric secretion by excitation of the sense of taste but also have a direct effect on the stomach, when introduced into it by means of a tube. They also produce transient leukocytosis, which is especially marked with quassia and columba. The author believes in pepsin, not only as substitution opotherapy but also as an excitant of gastric secretion and as a "regulator of the digestive hormones." He has shown it to be a stimulant to colonic motility, on hypodermic injection. As yet unappreciated therapeutic possibilities may reside in the injection of pepsin. He believes in the efficiency of orally administered pancreatin, especially with enteric coating; also that enteric pills of 0.20 Gm. of magnesium sulphate might be capable of exciting contractions of the gallbladder; and he does not express the reasonable doubt that the enteric coating may not dissolve at exactly the point it is intended to. All of this is mentioned to illustrate the rather optimistic tendency of the author, who evidently belongs to the first of the two classes mentioned. One naturally wonders whether the therapeutic optimism of the teacher might not be responsible for therapeutic nihilism developing among some of the disappointed students. There is, nevertheless, a great deal of good in this volume, the careful perusal of which certainly inculcates therapeutic resourcefulness.

GROW THIN ON GOOD FOOD. By Luella E. Axtell, M.D. Cloth. Price, $2. Pp. 336, with illustrations. New York: Funk & Wagnalls Company, 1930.

Here is a popular guide in simple language for the overweight person who wishes and needs to reduce to normal. It is based on experience from the author's own reduction and and from treatment of many obese patients. Tricks in cookery, cooking hints, are given to show how calories can be "squeezed" out of delightful dishes. Many menus and recipes are proposed for reducing body fat only and for yielding all nutrient needs. Exercise and work cooperate with the diet in the reduction program. Courses of exercises are outlined. Heat and cold treatments used with care are accessories to diet restrictions. When reduction has been accomplished, weight should be maintained at normal with the vital foods providing sufficient minerals, proteins and vitamins to meet all body needs.

TRAITEMENT MÉDICAL DES AFFECTIONS STOMACALES. Par Léon Meunier. Paper. Price, 22 francs. Pp. 211, with 34 illustrations. Paris: Masson & Cie, 1930.

This booklet, the result of thirty years of gastro-enterologic practice and experimental researches, is more important as a contribution to the literature on the subject than its size would suggest. It develops certain points of view that have not yet found general acceptance and deserve a hearing. Thus, the author's researches, in agreement with other French observers, point to a certain molecular concentration as a determining factor in gastric evacuation. Saline as well as nutritive solutions are retained in the stomach until the cryoscopic index is in the vicinity of 0.38; such is represented, for example, by 0.55 per cent solution of sodium chloride, a 1 per cent solution of sodium bicarbonate, of dried sodium sulphate, or of dried

sodium phosphate and a 2 per cent solution of dried sodium citrate. This is why mineral waters of the proper freezing point, such as vichy water, are better tolerated by the stomach than are others. Medicinal solutions prescribed for digestive disturbances should be at this ideal freezing point. All delayed epigastric pain or distress relieved by food or alkali is, in the author's opinion, due to pylorospasm produced by disproportion between the acidity of the gastric juice and the alkalinity of the duodenal juices: in other words, insufficient neutralization in the duodenal bulb. Even though there is excessive gastric acidity, pain does not occur as long as the duodenal secretions are capable of compensating; and, on the other hand, though gastric acidity is normal, a deficiency in duodenal alkalinity will produce the pain. The author studied duodenal hypo-alkalinity by a combined duodenal and gastric test meal after double intubation. He is inclined to ascribe the condition to high acidity of pathologic bile and finds it generally associated with hypercholesteremia. Alvarez's ingenious suggestion that pylorospasm is one of the phenomena of reverse peristalsis is not mentioned by the author, although, since as duodenal juice regurgitation occurs normally and is capable of cutting down excessive gastric acidity, it is probable that pylorospasm is the primary factor and the cause of disproportion in the hydrogen ion concentration at the pylorus, which then tends to be maintained as a vicious circle. The booklet concludes with cooking recipes for patients with gastric hyperacidity, duodenal hypo-alkalinity and gastric hypo-acidity. Even though some of the author's therapy may be rather visionary at times, as his recommendation of enteric capsules of sodium bicarbonate for duodenal hypo-alkalinity, the place in the intestine where such capsules may open being entirely problematic, one cannot but help wishing, in view of the many good things contained in it, that it may secure translation into English.

A MANUAL OF NORMAL PHYSICAL SIGNS. By Wyndham B. Blanton, B.A., M.A., M.D., Assistant Professor in Medicine, Medical College of Virginia. Second edition. Cloth. Price, $3. Pp. 246, with 49 illustrations. St. Louis: C. V. Mosby Company, 1930.

This small volume contains much information in tabular form and many diagrams of the location of organs with relation to the surface of the body. The material comprises only the normal physical signs. Under the lymphatic system, for example, there are tables showing what part of the head each group of glands drains. The parotid nodes drain the scalp, the middle ear and the chin. The axillary nodes drain the arm, the chest wall, the abdominal wall and the hand and breast. There are similar tables showing what lymph nodes drain other areas of the body. Under the subject of blood pressure there are brief tabulated definitions of fundamental terms such as pulse pressure, mean tension, hypotension, systolic blood pressure and diastolic blood pressure. The technic of taking blood pressure and the factors that cause it to vary are listed and so on through all parts of a physical examination. The aim was to list the normal signs so that they may be found promptly without having to read a long time, and that is the chief advantage in this style of book.

NAHRUNGSMITTEL-TABELLE ZUR AUFSTELLUNG UND BERECHNUNG VON DIÄTVERORDNUNGEN FÜR KRANKENHAUS, SANATORIUM UND PRAXIS. Von Dr. Hermann Schall, Leitender Arzt des Kindersanatoriums, Königsfeld. Ninth edition. Paper. Price, 5.40 marks. Pp. 124. Leipzig: Curt Kabitzsch, 1929.

This is simply a complete collection of tables of food values organized according to the various classifications of foods, and according to the various types of values with which the dietitian is concerned. It is as complete and scientific a series of tables of this character as is available.

SEVENTY BIRTH CONTROL CLINICS. A SURVEY AND ANALYSIS INCLUDING THE GENERAL EFFECTS OF CONTROL ON SIZE AND QUALITY OF POPULATION. By Caroline Hadley Robinson. Foreword by Robert Latou Dickinson. Cloth. Price, $4. Pp. 351. Baltimore: Williams & Wilkins Company, 1930.

The physician will be amply repaid, whatever attitude he takes on the subject of birth control, if he will carefully consider the contents of Mrs. Robinson's book. Written by a student of economics and not a biased reformer, the book presents facts rather than extravagant speculation. The fact that the manuscript is the first of a series of publications on the medical aspects of human fertility, issued by the National Committee on Maternal Health, is an added recommendation. In the foreword, Dickinson says: "Every new endeavor to better public health passes through a difficult early stage. . . . Control of conception presents no exception." Mrs. Robinson says: "We are coming to realize that voluntary limitation of the family is an essential part of the economic structure of nearly every age and clime, and that we must choose between measures . . . in particular the old forms of limitation by abortion and infanticide, by celibacy or postponement of marriage (with prostitution) and the newer discoveries of social medicine." A complete survey of the seventy birth control clinics is taken up the first part of the book, and social implications of birth control in the second. A full bibliography and adequate index are found at the end.

Medicolegal

Life Insurance: Cancer and Good Health

(Vann v. National Life & Accident Ins. Co. (Texas), 24 S. W. (2d) 347)

On March 28, 1926, Carrie S. Vann entered a sanatorium for treatment for a cancer of the cervix of the uterus. She was given a radium treatment and several roentgen treatments. On or about April 5, she was discharged. On May 17, the National Life and Accident Insurance Company issued a policy on her life. Mrs. Vann was taken to the hospital every two weeks for examination, but she was given no treatment. According to the testimony of her physician, after she left the hospital there was a period during which he could find no trace of the cancer, and the patient had no symptoms of it. She resumed her ordinary household duties and gained back her ordinary weight and strength. In September, however, there was a recurrence of the cancer, and the patient died, Feb 10, 1926 [sic]. When she died, the insurance company resisted payment, alleging that the insured was suffering from cancer when she applied for insurance and that her statements with reference to being in good health were untrue and false and were made for the fraudulent purpose of inducing the company to issue a policy on her life. The beneficiary under the policy, the husband of the insured, brought suit. The case was tried before a jury, which, at the conclusion of the testimony, was instructed by the court as follows:

> To aid you in answering the following question, the Court instructs you that sound health, as that term is used in this charge, does not mean perfect health; it does not mean absolute perfection, but sound health in the construction of life insurance policies is a state of health free from any disease or ailment that affects the general soundness and healthfulness of the system seriously, that is, that the insured be not afflicted with a disease or bodily infirmity of a substantial nature, which affects the insured's general health, or which materially increases the risk to be assumed by the insurer.
>
> 1. Was Mrs. Carrie S. Vann, wife of the plaintiff, in sound health as that term has been hereinabove defined to you, at the time the policy in question was issued on the 17th day of May, 1926? Answer yes or no.

Under the foregoing instruction, the jury found that the insured was in good health when the policy was issued, and judgment was issued against the insurer. The insurer appealed to the Court of Civil Appeals for the Eighth Supreme Judicial District, which reversed the judgment of the court below and rendered judgment in favor of the insurer. Thereupon the beneficiary under the policy appealed to the Commission of Appeals of Texas, Section A.

We think, said the Commission of Appeals, that there was sufficient evidence to raise the question as to whether or not the insured was in sound health, as the term was defined by the court, at the time the policy in question was issued, May 17, 1926. The Court of Civil Appeals erred in reversing the case and rendering judgment in favor of the insurer The rule of law in Texas is that the Court of Civil Appeals may reverse the judgment of a trial court on the preponderance of evidence, but it cannot render the judgment, if, disregarding all adverse evidence and giving credit to all evidence favorable to the plaintiff, and indulging every legitimate conclusion favorable to the plaintiff which might have been drawn from the facts proved, the jury might have found in favor of the plaintiff.

Winninger v. *Ft. W. & D. Ry. Co.* 105 Texas 56, 143 S. W. 1150. For the reasons stated above, and for other reasons stated in the opinion, the judgment of the Court of Civil Appeals was reversed, and the judgment of the trial court in favor of the beneficiary under the insurance policy was affirmed.

Hospital Liable for Fatal Tonsillectomy

(Gilstrap v. Osteopathic Sanatorium Co. (Mo.), 24 S. W. (2d) 249)

The Osteopathic Sanatorium Company operated the "Still-Hildreth Sanatorium," Macon, Mo., for the treatment of mental and bodily diseases according to osteopathic methods. On the staff was one R. J. McReynolds, an osteopath, whom the company paid a salary and provided with room and board. McReynolds, however, "Specializing in Eye, Ear, Nose and Throat," was associated with two osteopaths in Macon, who were authorized to make appointments for him.

Raymie Gilstrap called at the sanatorium with a friend, Sept. 6, 1928. He introduced McReynolds, saying, "This is the doctor that is going to remove my tonsils." Gilstrap returned to the sanatorium about half-past two on the afternoon of September 8. After some delay, McReynolds undertook to remove his tonsils under local anesthesia but was unable to do so. After McReynolds gave up the operation under local anesthesia, Gilstrap lay down about fifteen minutes. Then McReynolds took him in a car to the hospital connected with the Kirksville College of Osteopathy and Surgery, about 32 miles away. There Gilstrap was given a general anesthetic. He was removed to the operating room about 6:20, but McReynolds did not begin the operation until about 7 o'clock. About forty-five minutes later, a surgeon, Petermyer, connected with the hospital, came into the operating room and called McReynolds' attention to the weak and rapid pulse of his patient. The tonsils had been removed, but there was a "constant welling up of blood." McReynolds, who had been trying to stop it with a sponge, asked Petermyer's advice. Petermyer advised suturing, but McReynolds said that he had never done that and did not care to do it. Petermyer sutured, at McReynold's request, and the hemorrhage stopped. About 8 o'clock the patient was removed to his room, cyanotic, gasping for air, and without a discoverable pulse at the wrist. A glucose solution was injected and adrenalin was administered, but shortly after 9 o'clock the patient died.

Gilstrap's widow brought suit against the Osteopathic Sanatorium Company and obtained a verdict for $6,500. The sanatorium company appealed to the Kansas City Court of Appeals. It asserted, among other things, that there was no evidence on which to submit to the jury the question of the defendant's liability for McReynolds' acts and claimed that he was not the agent of the company but acted on his own behalf. Hildreth, the president and superintendent of the sanatorium, testified that the sanatorium was conducted solely for the treatment of nervous and mental diseases, that surgery was not employed, and that surgical cases were not admitted. There was no evidence, however, that Gilstrap knew that the company claimed that it treated only nervous and mental diseases, and the company was not entitled to any inference that he had any such knowledge. It was proper to assume only that Gilstrap believed that he was entering the sanatorium as its patient, to be treated by its physicians and surgeons. When he entered the sanatorium, the relation of physician and patient was created between him and the company. The relation continued until changed by mutual consent, or until reasonable notice was given, or until ended by his dismissal. The fact that the operation was ended elsewhere than at the sanatorium was of no consequence, if the relation of patient and physician existed and continued to exist throughout his treatment.

The claim of the Osteopathic Sanatorium Company that there was no proof of negligence on McReynolds' part and no proof of malpractice for which the company was responsible was met by the following statement by the court:

> Sufficient proof was made. The operation upon the patient was continued an unreasonable length of time, four times as long as would reasonably be required; dangerous hemorrhage was produced during the operation; the doctor in charge either failed to discover it or failed to stop the hemorrhage; and when advised by another doctor, about 45 minutes after the beginning of the operation, that the wound should be sutured in order to stop the hemorrhage, he declined to do it himself, but requested the other doctor to do it; that [sic] at the time the wound was sutured it was too late to save the patient's life on account of the loss of blood, and the unreasonable length of time of the operation. These, with other facts and circumstances in evidence, show that the treatment and operation upon the patient was not only improper and ill-advised, but was a complete and tragic bungle from its inception to its end. This presents a patent case of a doctor subjecting a patient to improper treatment, and allowing the patient to bleed to death, when in the exercise of ordinary skill it could have been prevented.

The Osteopathic Sanatorium Company asserted further, in support of its appeal, that no causal connection had been established between the alleged negligence and the death of the patient. But, said the court, there was nothing from which the jury could reasonably have concluded that death was due to any cause other than negligence and improper treatment, and no expert testimony on this subject was necessary. The company had not attempted to justify or excuse the methods adopted or to show that carelessness in the operation was not the cause of death or that death could not have been prevented by the use of ordinary skill. The court continued:

> For the jury to find, or for us to hold that defendant, as the doctor of this patient, did use reasonable care and skill, would be to profane the noble and humane profession of the healing art. Defendant employed and harbored an incompetent doctor in its sanatorium, and held him out to the public as safe and fit for all functions apparently intrusted to him, and should not be permitted to escape the consequences of his incapacity. If it could escape on the mere assertion that the doctor was not its agent, which assertion the jury did not believe, then the defendant, without responsibility, could entrap the innocent and unwary.

For the reasons here stated and for other reasons stated in the opinion, the judgment of the court below, in favor of the widow of the deceased was affirmed.

Illness of Juror: Effect on Verdict.—The separation of a sick juror from other members of the jury, in charge of a deputy sheriff, for medical attention, by direction of the court, pending the trial and after the jury had been ordered to be kept together, was a proper exercise of the court's discretion and could not be regarded as a violation of the order requiring the jury to be kept together, nor as imposing on the state the burden of making an affirmative showing that the sick juror was not exposed to any improper influence. The physician summoned by direction of the judge administered to the juror about 7 o'clock in the morning a hypodermic injection containing one-fourth grain of morphine and left with him a preparation of bismuth and paregoric. He stated that when the juror went back to service in the afternoon he was suffering no pain and his mental condition was normal. Although the sick juror sat in a rocking chair, supported by pillows to make his position more comfortable, during the remainder of the trial, there was no showing made that the juror was incompetent No objection was made by the appellant, as should have been done if the juror's condition warranted it, to proceeding with the trial, because of the juror's condition, but an attempt was made to explain this by stating that until after the trial was completed attorneys for the appellant had no knowledge of the kind of medicine that had been administered The court had held, however, in previous cases, that no error was committed in denying motions for a new trial on the ground that a juror had the appearance of being asleep or was asleep during the progress of the trial. *Pelham* v. *Page,* 6 Ark. 535; *Dolan* v. *State,* 40 Ark. 454. In the present case, the court found no error in the record. The judgment following conviction of second degree murder was affirmed, one justice dissenting.—*Spence v. State (Ark.), 24 S. W. (2d) 331.*

Society Proceedings

COMING MEETINGS

American Society of Tropical Medicine, Cleveland, December 27-30. Dr. Edwin Peterson, U. S. Naval Hospital, Washington, D. C., Secretary.

American Student Health Association, New York City, December 29-30. Dr. D. F. Smiley, Cornell University, Ithaca, N. Y., Secretary.

Radiological Society of North America, Los Angeles, December 1-5. Dr. I. S. Trostler, 25 East Washington Street, Chicago, Secretary.

Society of American Bacteriologists, Boston, December 29-31. Dr. James M. Sherman, Cornell University, Ithaca, New York, Secretary.

Southern Surgical Association, Lexington, Ky., December 9-12. Dr. Robert L. Payne, 142 York Street, Norfolk, Va., Secretary.

Western Surgical Association, Kansas City, Mo., December 5-6. Dr. Frank R. Teachenor, 306 E. Twelfth St., Kansas City, Mo., Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American J. Medical Sciences, Philadelphia

180: 453-596 (Oct.) 1930

*Clinical and Pathologic Studies on So-Called Tubular Nephritis (Nephrosis). S. B. Wolbach and K. D. Blackfan, Boston.—p. 453.
*Transfusion of Blood in Bright's Disease. H. O. Mosenthal and B. Ashe, New York.—p. 476.
*Etiology of Erythema Nodosum in Children: Relation to Early Tuberculous Infection. L. B. Dickey, San Francisco.—p. 489.
*Antistreptococcus Serum Treatment of Patients with Rheumatic Fever. C. H. Hitchcock, C. McEwen and H. F. Swift, New York.—p. 497.
*Blood Transfusion in Acute Infectious Diseases. J. F. Landon, New York.—p. 514.
*Venous Murmurs Found in Hepatic Cirrhosis and Confusion with Murmurs of Congenital Heart Disease. N. B. Gwyn, Toronto.—p. 525.
*Chronic Cholecystitis: Motor Disturbances of Gastro-Intestinal Tract in Relation to Preoperative and Postoperative Symptoms. N. W. Jones and D. L. Palmer, Portland, Ore.—p. 531.
Visceroptosis. B. P. Seward, Roanoke, Va.—p. 548.
*Visceral Pain. R. D. Rudolf and A. G. Smith, Toronto, Canada.—p. 558.

So-Called Tubular Nephritis (Nephrosis.)—Wolbach and Blackfan report eight fatal cases of acute tubular nephritis in children, with a view of ascertaining the accuracy with which a pathologic diagnosis can be determined from a consideration of the clinical and laboratory data. They believe that these cases are representative of a disease entity in childhood. This belief implies a common etiology or pathogenesis for the series. The pathology of the kidneys affords no premises for the explanation of the important physiologic disturbances of the disease and, therefore, they do not believe that the primary effect of the etiologic agent is on the kidneys or that the important manifestations of the disease are consequences of injury specific to the kidneys. The histologically demonstrable damage to the kidneys was found in the tubules. The glomeruli showed only lesions accountable for either by the terminal infection or severe degeneration of the tubules of the same units. In general the glomeruli were without lesions. Conclusion regarding the rôle of the thyroid in this disease is not possible. The thyroid lesion is probably a manifestation of functional exhaustion and, therefore, probably is neither cause nor direct consequence of the kidney damage. The pathology of the liver, and slight atrophy and degeneration of the hepatic cells, may also be interpreted as effects of overtaxed functional activity consequent to the loss of blood proteins. While offering no substitute, they believe that any name implying a renal origin, such as nephrosis or tubular nephritis, is not appropriate to this disease.

Transfusion of Blood in Bright's Disease.—In cases of Bright's disease treated by other clinics or physicians, Mosenthal and Ashe have noted that transfusions of blood have been resorted to without untoward results; however, many clinicians fear the use of blood transfusions in nephritic patients because of damage that might be induced in the kidneys. This fear seems not to be the result of actual experience but to be based merely on certain preconceived impressions. From their own observations and those in the literature, they believe that anuria and other complications of transfusion are rare and, furthermore, are not more common in cases of Bright's disease than in other conditions. Several instances of nephritis and anuria are quoted, in which transfusions were followed by distinct improvement in the activity of the kidneys; in their experience, transfusions of blood have no distinct diuretic effect and they believe that when an increased output of urine resulted it was due to the recovery of the kidney function independently of the added blood. Transfusions of blood in Bright's disease do not raise the blood pressure, do not injure the kidneys, and neither relieve nor aggravate uremic symptoms; they furnish the most suitable means of treating the secondary anemia accompanying marked renal insufficiency; in one case of anasarca complicating a chronic diffuse nephritis, neither the subcutaneous edema nor the ascites was relieved by raising the hemoglobin and red blood cells to normal levels by means of repeated transfusions. The principal indication for the transfusions of blood in Bright's disease is in the relief of the progressive secondary anemia accompanying impairment of renal function. In such cases it is impossible to remedy the condition by a high-protein diet, as retention uremia would be a sequel. Transfusions will ameliorate a serious condition for a long period when the kidneys are moderately involved, for a short time only if the renal parenchyma is largely destroyed. Several successive transfusions are, as a rule, necessary to restore the hemoglobin and red blood cells to an approximately normal level. The procedure may have to be repeated at intervals if the secondary anemia recurs.

Etiology of Erythema Nodosum in Children.—Eight cases are reported by Dickey. He says that erythema nodosum may occur in nontuberculous individuals or in those infected with the tubercle bacillus. The great majority of cases of erythema nodosum in children are associated with a tuberculous infection and most of the infections are initial and recent. Most children who have erythema nodosum exhibit marked hypersensitiveness to tuberculin given intracutaneously. There may be associated, in addition to the tuberculous infection, other conditions which possibly influence the hypersensitiveness to tuberculin. In many cases of erythema nodosum in children, epituberculous lesions in the pulmonary parenchyma can be demonstrated by roentgenograms of the chest. In the series reported, none of the individuals observed were known to develop an active tuberculous lesion of the lung. The lesions of erythema nodosum, the epituberculous lesions and the positive skin tuberculin reactions are similar histologically. As erythema nodosum is usually associated in children with early tuberculous infections, proper treatment for the latter condition gives a favorable prognosis as far as tuberculosis is concerned.

Antistreptococcus Serum for Patients with Rheumatic Fever.—If a hypothetic toxin or some peculiar bacterial fraction or autolysate is responsible for the various manifestations of the disease, Hitchcock et al. assert that these substances are elaborated in varying amounts and intensity over long periods; hence it is improbable that a serum effect, which at best can be of only short duration, would be ultimately successful. Their observations lead to the conclusion that antistreptococcus serum has no permanent antirheumatic influence and that acute antipyretic, antiarthritic and antitoxic effects can be obtained more certainly from salicylates or neocinchophen. Whether the favorable effects that followed a combination of these drugs with serum in a few cases of pericarditis were anything more than fortuitous is open to discussion. Of this one can be certain; that antistreptococcus serum has in no way replaced the long-established therapy of rheumatic fever, nor does it apparently add enough to warrant its universal adoption. The unpleasant reactions sometimes attendant on its application have not been outbalanced by a reciprocal certainty of therapeutic benefit.

Blood Transfusion in Acute Infectious Diseases.—One hundred cases have been studied by Landon. They include cases of diphtheria, scarlet fever, measles, pertussis, poliomyelitis, varicella, typhoid, streptococcus septicemia and postmeasles encephalitis. Blood transfusion appears to be contraindicated in diphtheria complicated by myocarditis, and in laryngeal diphtheria particularly when bronchopneumonia is present. It is a valuable adjuvant in the preoperative and postoperative care of mastoiditis, sinus thrombosis and empyema, particularly when these conditions are complications of scarlet fever or measles. It is of value in the treatment of bronchopneumonia complicating measles and pertussis. As a general tonic in protracted cases in which anemia and malnutrition develop, its use is strongly indicated.

Venous Murmurs in Hepatic Cirrhosis and Murmurs of Congenital Heart Disease.—Gwyn asserts that clefts in the sternum due to some defect in the process of ossification

constitute a not uncommon anomaly. The collateral circulation that develops in the course of cirrhosis of the liver may easily provide venous trunks, which may pass through such clefts en route to sinuses of considerable size beneath the sternum. A loud murmur may be produced by the fluid eddies that will be present in such vascular connections. Such murmurs, if continuous and found in the neighborhood of the third, fourth or fifth interspaces of the left side, may well be confused with those of congenital heart disease. Before coming to any conclusion in connection with continuous murmurs over the heart area, finger pressure should be carefully applied to areas immediately adjacent to the sternum.

Chronic Cholecystitis.—A clinical study of a considerable number of cases of chronic cholecystitis has been made by Jones and Palmer for the purpose of correlating the "direct" and the "indirect" evidence of the presence of gallbladder disease. It has been shown that the proper correlation of these factors leads to a remarkably accurate clinical diagnosis of gallbladder disease—from 95 to 97 per cent of correct diagnoses. A method is given by which, with a high degree of safety, cases of chronic cholecystitis that should be considered surgical in type may be segregated. Based on the metabolic gradient theory of peristalsis, a logical explanation is given for the presence of most of the preoperative symptoms of chronic cholecystitis and also for the presence of the same symptoms remaining after operation. A workable method of postoperative medical treatment, based on this theory of peristalsis and on the constitutional type of the patient, is also given. The calcium oxide content of the gallbladder wall increases in percentage, for some unknown reason, as the gallbladder increases the density of its shadow on direct roentgen films. The content varies from an average of 0.02 per cent of calcium oxide, dry weight, in presumably normal gallbladders, which cast no shadow on the direct film, to an average of 0.16 per cent of calcium oxide, dry weight, in those gallbladders which cast a dense shadow on the direct film. No explanation is given for this finding, and its relation, if any, to shadow production on the direct film has not been determined.

Visceral Pain.—Rudolf and Smith aver that true visceral pain exists. It is usually dull but may be acute. Such visceral pain may occur alone or be accompanied by referred pain, which will appear in the distribution of the somatic nerves that come from the segment of the central nervous system with which the affected visceral nerves are connected. In many instances the referred pain is the only one that reaches the level of consciousness. Referred pain is more easily relieved than is that coming from the source of the irritation. This relief can be obtained by the use of various anodyne applications and especially by the infiltration of the skin by anesthetics, such as procaine hydrochloride. Often such anodynes will also, to a certain extent, relieve the deep suffering, but sometimes this is not the case and the afferent impulses from the source of irritation may, without any amplification from the periphery, be sufficient to reach the sensorium. When a referred pain is present it may be relieved either by attacking it at its distribution or, more specifically, by directly treating the cause of the irritation. The theory advanced here is that for referred pain to occur it is essential that the whole sensory reflex arc be intact.

American Journal of Ophthalmology, Chicago

13: 847-942 (Oct.) 1930

Theoretical and Practical Notes on Glaucoma. C. Hamburger, Berlin.—p. 847.
Central and Paracentral Homonymous Hemianopic Scotomas. O. Barkan and H. Barkan, San Francisco.—p. 853.
Perimetry: Preliminary Work on Diagnostic Scale for Form Field with a 0.17 Degree Stimulus. C. E. Ferree, G. Rand and M. M. Monroe, Baltimore.—p. 859.
Concerning Contact Glasses. R. Von der Heydt and H. Gradle, Chicago.—p. 867.
Tendon Transplantation for Paralysis of Superior Rectus. L. C. Peter, Philadelphia.—p. 869.
Surgery of Closed Pupil. A. E. Bulson, Fort Wayne, Ind.—p. 871.
Bacterial Flora of Normal Conjunctiva with Comparative Nasal Culture Study. R. A. Keilty, Washington, D. C.—p. 876.
Primary Tumors of Optic Nerve: Case. G. A. Mathewson, Montreal.—p. 880.
Rat Bite of Eyelids Resulting in Rat-Bite Fever. C. M. Swab, Omaha.—p. 884.
Condylomata at Inner Canthi: Case. E. B. Gresser, New York.—p. 886.
Historic Memorabilia Regarding Visual Field and Perimetry. H. McI. Morton, Minneapolis.—p. 888.
Color Photography for Improved Teaching of Ophthalmology. L. D. Redway, New York.—p. 891.

American Journal of Surgery, New York

9: 413-638 (Sept.) 1930

Acquired Contractures of Hand. S. L. Koch, Chicago.—p. 413.
Compression Fractures of Spine. F. Christopher, Evanston, Ill.—p. 424.
Deformities and Obstruction of Duodenum. A. G. Brenizer, Charlotte, N. C.—p. 430.
Lymphangioma of Mesentery. W. Crane, Oakland, Calif.—p. 441.
Sarcoma of Stomach: Four Cases. R. D'Aunoy and A. Zoeller, New Orleans.—p. 444.
Evaluation of Roentgen Examination in Duodenal Ulcer. C. D. Enfield, Louisville, Ky.—p. 465.
Carcinoid Tumors of Small Intestines. G. T. Pack, New York, and A. H. Davis, Tuscaloosa, Ala.—p. 472.
Route of Metastasis in Cancer of Breast. A. A. Salvin, New York.—p. 478.
Pseudoperitonitis Due to External Traumatism. F. S. Wetherell, Syracuse, N. Y.—p. 480.
Calculus of Upper Urinary Tract. A. R. Stevens and C. W. Collings, New York.—p. 484.
Gonorrheal Infections of Bladder and Kidneys. W. S. Pugh, New York.—p. 492.
Posterior Colpotomy for Pelvic Infection (Fraenkel Technic). H. C. Falk, New York.—p. 494.
Traumatized Kidney: Measuring Percentage of Disability. S. R. Woodruff, Jersey City, N. J.—p. 499.
Medical Aspects of Treatment of Benign Prostatic Hypertrophy. E. C. Andrus, Baltimore.—p. 502.
Prostatic Neoplasms: Diagnosis by Needle Puncture and Aspiration. R. S. Ferguson, New York.—p. 507.
Acute Appendicitis. C. Ginn, Dayton, Ohio.—p. 512.
Episiotomy as Means of Preserving Pelvic Floor During Labor: Simple Method of Suture. R. A. D. Gillis, Pittsburgh.—p. 520.
Adjustable Extension for Fractures of Upper Third of Femur. W. L. Gould, Albany, N. Y.—p. 527.
Chronic Inflammatory Vesical Neck Obstruction. J. A. Hyams and S. E. Kramer, New York.—p. 530.
Acute Hemorrhage from Corpus Luteum and Graafian Follicle. V. E. Johnson, Atlantic City, N. J.—p. 538.
Renal Tuberculosis: Changing Conceptions in Decade 1920-1930. H. C. Bumpus, Jr., and G. J. Thompson, Rochester, Minn.—p. 545.
Evaluation of Dental Roentgenographic Shadows. W. A. Lurie, New Orleans.—p. 552.
Operative Repair of Anterior Crucial Ligament of Knee Joint. A. Krida, New York.—p. 556.
Osteochondral Fracture of Knee Joint. A. Krida, New York.—p. 558.
Dislocation Between Fifth and Sixth Cervical Vertebrae: Delayed Operative Reduction and Fusion. A. Krida, New York.—p. 560.

American Review of Tuberculosis, Baltimore

22: 337-466 (Oct.) 1930

National Tuberculosis Association: Activities and Policies. L. R. Williams, New York.—p. 337.
Pulmonary Acoustics: IV. Notes on Percussion and Forced Vibrations. F. W. Bishop, Y. W. Lee, W. J. M. Scott and R. S. Lyman, Rochester, N. Y.—p. 347.
Cellular Reactions to Primary Infection and Reinfection with Tubercle Bacillus: II. Cells of Peritoneal Exudate Produced by Local Injection of Tubercle Bacilli into Normal Sensitized Guinea-Pigs. L. U. Gardner, Saranac Lake, N. Y.—p. 379.
Relations of Intrapulmonary Lymphoid Tissue to Bronchi in Rabbit. H. S. Willis, Baltimore.—p. 413.
*Review of Incubation Method of Sputum Concentration. H. C. Sweany and A. Stadnichenko, Chicago.—p. 420.
Variations of Tubercle Bacillus in Clinical Specimens. H. Stempa, Hartford, Conn.—p. 443.
*Serum-Calcium in Pneumonoconiosis. M. J. Sokoloff and A. Cantarow, Philadelphia.—p. 449.
*Immuniobiology in Diagnosis and Treatment of Pulmonary Tuberculosis. A. A. Lilien, New York.—p. 455.

Incubation Method of Sputum Concentration.—The results of 106,464 sputum examinations by the incubation-concentration method are reported by Sweany and Stadnichenko, of which 16,103 were positive. Fifteen per cent more positives were obtained by concentration than by direct smear in a control series of 1,500 specimens. No false positives were obtained in 6,283 examinations on negative controls consisting of observation cases, nontuberculous diseases and closed tuberculosis. Sixteen positive diagnoses were justifiably questioned because they did not conform to the clinical and roentgen observations at the time of the sputum examination. Of the sixteen, six were proved to be tuberculous; six were probably tuberculous; one was probably not tuberculous, but one in which the bacilli were avirulent or indifferent; while three were most probably

errors in technic. This virtually leaves 4 errors in 16,103 positives, or 1 in about 4,000. Atypical acid-fast forms, when found alone, should be considered only suspicious until proved otherwise. There appear to be no more sources of error with this method than there are with any other method of similar technical manipulation.

Serum-Calcium in Pneumonoconiosis.—In a group of thirty patients with pneumonoconiosis studied by Sokoloff and Cantarow, fifteen of whom had an associated active tuberculous lesion, the serum-calcium ranged from 7.98 to 14.81 mg. per hundred cubic centimeters, being above normal in twenty-six patients, subnormal in one, and normal in three. The serum-calcium level bore no relation to the incidence or activity of the complicating tuberculous process. It is believed that the hypercalcemia in pneumonoconiosis is in all likelihood dependent on the increase in the carbon dioxide tension of the blood, which is an inevitable consequence of the pulmonary lesion.

Immunobiology in Diagnosis and Treatment of Pulmonary Tuberculosis.—Lilien finds that immunobiology in tuberculosis affords in some cases an early diagnosis in the preclinical stage and helps to explain the development of immunity, the biologic stage of the struggle in the given individual, and the prognosis. Therapeutically, in a great number of cases immunobiologic means can be advantageously used, together with other means in the fight against tuberculosis.

Annals of Medical History, New York

2: 453-586 (Sept.) 1930

Physician of Dance of Death. A. S. Warthin, Ann Arbor, Mich. —p. 453.
Benjamin Rush and His Critics. J. H. Lloyd, Philadelphia.—p. 470.
William Hunter's Obstetric Career. G. C. Peachey, London, England. —p. 476.
Infant Welfare Movement in Eighteenth Century. E. Caulfield, Hartford, Conn.—p. 480.
History of Craniotomy: Account of Methods Which Have Been Practiced and Instruments Used for Opening Human Skull During Life. L. Rogers, Cardiff, Wales.—p. 495.
Ancient Syphilitic Skull from Paracas in Peru. J. C. Tello, Lima, Peru, and H. U. Williams, Buffalo.—p. 515.
John Keats: Reactions of a Genius to Tuberculosis and Other Adversities. R. L. Pitfield, Philadelphia.—p. 530.
Papyrus Ebers. R. H. Major, Kansas City, Mo.—p. 547.
Tuberculosis and Genius as Manifested in St. Francis of Assisi. L. J. Moorman, Oklahoma City.—p. 556.
Influence of Claude Bernard on Physiologic Concepts. M. H. Goldstein, University, Va.—p. 560.

Archives of Dermatology & Syphilology, Chicago

22: 605-776 (Oct.) 1930

*Excretion of Bismuth: Potassium Bismuth Tartrate and Bismuth Salicylate. P. J. Hanzlik and H. G. Mehrtens, San Francisco.—p. 605.
Perniosis or Erythrocyanosis. V. Klingmüller and O. Dittrich, Kiel, Germany.—p. 615.
Dermatology in Mexico. H. Fox, New York.—p. 620.
*Perspiration: I. Bismuth. H. W. Schaffer, Philadelphia.—p. 624.
Keratoderma Blennorrhagicum: Two Cases; Gonococcus in Local Lesions in One Case. C. C. Barrett, Cleveland.—p. 627.
*Dermatophytid Complicating Tinea Cruris. C. M. Williams, New York. —p. 637.
*Perlèche of Adults: Five Cases Apparently of Mycotic Origin. E. A. Skolnik, Chicago.—p. 642.
Lupus Erythematosus Ungium Mutilans Treated with Gold and Sodium Thiosulphate: Case. L. McCarthy, Washington, D. C.—p. 647.
*Pyoderma (Echthyma) Gangrenosum: Clinical and Experimental Observations in Five Cases Occurring in Adults. L. A. Brunsting, W. H. Goeckerman and P. A. O'Leary, Rochester, Minn.—p. 655.
Dermatitis Nodularis Necrotica. F. J. Eichenlaub, Washington, D. C. —p. 681.
New Form of Therapy for Psoriasis. H. S. Campbell and K. Frost, Los Angeles.—p. 685.
*Lichen Nitidus: Case Treated with Gold Sodium Thiosulphate. H. D. Niles, New York.—p. 687.

Excretion of Bismuth.—The clinical excretion of bismuth after the intramuscular injection of comparatively small therapeutic doses of potassium bismuth tartrate and of bismuth salicylate, both in oil, was found by Hanzlik and Mehrtens to be prompt but slow, irregular, variable, prolonged and incomplete. After the injection of potassium bismuth tartrate, the peak of daily excretion was reached on the twelfth day after a single dose (0.056 Gm. of bismuth) and on the fifteenth day after two and three doses (0.112 and 0.168 Gm.) after the first injection. The maximum daily excretion of bismuth after one dose was 0.5 mg., after two doses 3.6 mg., and after three doses 2.4 mg. After the injection of bismuth salicylate, the peak of daily excretion was reached on the fifteenth day after a single dose (0.075 Gm. of bismuth) and on the tenth day after four doses (0.312 Gm.). The maximum daily excretion of bismuth after one dose was 1.5 mg., and after four doses 1.3 and 4.5 mg., respectively, in two subjects. The urinary excretion of bismuth after the use of potassium bismuth tartrate lasted at least seventy-two days after two doses and forty-two days after three doses; after bismuth salicylate, at least twenty-six days after one dose and seventy-nine days after four doses. The duration of excretion did not appear to be related to the dosage. The total urinary excretion of bismuth after the use of potassium bismuth tartrate was 54.6 per cent after two doses and 24 per cent after three doses; after bismuth salicylate, 25 per cent after one dose and 44.5 per cent after four doses. The bismuth unaccounted for remains in the body as a depot at the site of injection and in the viscera, traces being excreted probably for months. The median daily excretion of bismuth in feces after injection of potassium bismuth tartrate was about one twelfth of that in urine, the range being from 1:27 to 1:2; after bismuth salicylate the median was 1:8, the range being from 1:14 to 1:1.5.

Perspiration: Bismuth.—The sweat of four patients undergoing an intensive course of treatment with bismuth was found by Schaffer to contain no bismuth. Urine from the same subjects showed the presence of bismuth in amounts of from 0.6 to 1.5 mg. per hundred cubic centimeters. Blood of one subject was examined and did not show the presence of bismuth.

Dermatophytid Complicating Tinea Cruris.—A report is given by Williams of an eruption following the typical course of dermatophytid, and an appearance common in that eruption, consecutive to severe tinea cruris. It is believed to be the first case of the kind recorded.

Perlèche of Adults.—Five cases of perlèche are reported by Skolnik. They were all bilateral and chronic and were in adults. Organisms, identified as cryptococci, were cultivated from the lesions in each case. Inoculation of a pure culture of cryptococcus made under the normal breast produced a lesion similar to those at the angles of the mouth, which disappeared spontaneously within from three to four weeks. Cryptococci were isolated from this experimentally produced erosion on the first of three attempts, which was on the fifth day. No yeasts grew from scrapings cultured on the tenth and fifteenth days. Control cultures made from the angles of normal mouths revealed only bacteria.

Pyoderma (Echthyma) Gangrenosum.—An unusual type of ulceration of the skin is described by Brunsting et al. as occurring in five adults who were debilitated by reason of some infectious process elsewhere in the body. Four of the patients had chronic ulcerative colitis of years' standing; the other had chronic empyema. A striking parallel relationship was demonstrated between the activity of the cutaneous lesions and the major infectious focus, the intestine. Results of clinical and histologic studies compare favorably with those previously reported in studies of certain types of pyoderma. The similarity of this condition, amebiasis cutis and hemolytic streptococcus gangrene of the skin and subcutaneous tissues is considered. Amebas were not demonstrated in cutaneous lesions or stools. On the other hand, hemolytic streptococci and staphylococci were found with consistent regularity in the secretions from the ulcers and in the deeper tissues of specimens removed for biopsy. Intradermal inoculation of rabbits with the combination of the foregoing organisms produced an ulcerative area similar to the undermining lesions seen in the patients. The authors believe that the cutaneous manifestations described as pyoderma gangrenosa are but one part of a generalized infectious syndrome characterized by a marked lowering of bodily resistance to the invading organisms. Healing of the cutaneous lesions is dependent on the successful treatment of the systemic disease.

Lichen Nitidus Treated with Gold Sodium Thiosulphate.—The most striking point in Niles's report is that a case of lichen nitidus, a disease supposed by many to be of tuberculous origin, cleared up during the administration of gold sodium thiosulphate, although true tuberculosis of the skin rarely, if ever, responds to this treatment. A parallel might

be drawn with lupus erythematosus, which likewise has been presumed to be of tuberculous etiology and yet reacts uniformly well to aurotherapy.

Archives of Neurology & Psychiatry, Chicago

24: 667-882 (Oct.) 1930

Psychiatry of Our Colonial Forefathers. S. E. Jelliffe, New York.—p. 667.
William Cowper, English Poet. J. H. Lloyd, Philadelphia.—p. 682.
Staining Nerve Fibers in Mounted Sections with Alcoholic Silver Nitrate Solution. H. A. Davenport, Chicago.—p. 690.
Experimental Lesions in Tuber Cinereum of Dog, Followed by Epileptiform Convulsions and Changes in Blood Chemistry. L. O. Morgan and C. A. Johnson, Chicago.—p. 696.
Permeability of Hemato-Encephalic Barrier as Determined by Bromide Method. S. T. Gordy, Byberry, Pa., and S. M. Smith, Chicago.—p. 727.
Lesions of Frontal Lobe. E. Sachs, St. Louis.—p. 735.
*Takata-Ara Colloidal Test with Spinal Fluid. L. J. Karnosh and H. N. King, Cleveland.—p. 743.
Hereditary Factors in Manic-Depressive Psychosis. H. A. Paskind, Chicago.—p. 747.
*Influence of Intercurrent Febrile Disorders on Preexisting Epilepsy. R. H. Guthrie, Palmer, Mass.—p. 753.
*Encephalitis and Influenzal Pneumonia Following Vaccination: Case. R. Tuthill, Buffalo.—p. 759.
Pathogenesis of Amaurotic Idiocy. C. Schaffer, Budapest, Hungary.—p. 765.
Hereditary Optic Atrophy (Leber's Disease). H. H. Merritt, Boston.—p. 775.
Unique Postencephalitic Syndrome: Complete Pupillary Immobility, Hirschsprung Colon and Vesical Incontinence. D. M. Olkon and H. Beard, Chicago.—p. 781.
Use of Scannell Blood Transfusion Chamber in Lumbar Injection of Air. H. E. Le Fever, Columbus, Ohio.—p. 786.
Peculiarities of Behavior: Wandering Mania, Kleptomania, Dipsomania, Pyromania and Allied Impulsive Acts. B. Karpman, Washington, D. C.—p. 787.
Progress in Psychiatry: V. Eidetic Phenomena and Psychopathology. F. Wertham, Baltimore.—p. 809.

Takata-Ara Colloidal Test with Spinal Fluid.—From clinical experience with the Takata-Ara test Karnosh and King conclude that the test is not highly specific. While it is positive in about 82 per cent of the cases of metasyphilis, there is enough disagreement to make its value as a routine test in syphilis rather doubtful. It is frequently positive in other organic, nonsyphilitic conditions, such as cerebral arteriosclerosis, brain trauma and tumor. Although, in comparison with other colloidal reactions, the test is simple to carry out and to read, it has no advantage over the Weichbrodt reaction.

Influence of Intercurrent Febrile Disorders on Preexisting Epilepsy.—Among eighty-five patients with influenza, Guthrie says that slightly more than half showed a decrease in the number of convulsions following this disease; however, the total number of convulsions in all cases was slightly increased. Among seventeen patients with scarlet fever, a great majority had more convulsions after the acute illness than before, and the total number of convulsions increased following the acute infection; however, the decrease in number of seizures during the month of acute illness was most noticeable. After chickenpox, erysipelas, tonsillitis and diphtheria there was a slight decrease in the number of convulsions, but the number of patients showing this relative improvement was so limited that these apparently favorable results are considered practically negligible. The decrease in the number of seizures that occurred in 200 cases followed over 10.6 months before and 10.6 months after an acute febrile disorder was only 3.6 per cent. A gradual decrease has been noted in the frequency of seizures in patients showing progressive deterioration with definite neurologic signs. This probably offsets the almost negligible decrease in seizures (3.6 per cent) following acute febrile states. The most prominent feature of this analysis is the decrease in the number of seizures in most cases during the month of illness, and this is reflected in the comparison of total averages before, during and after the acute illness. The decrease in the number of seizures during the month of illness, as compared with the average monthly rate of convulsions for 10.6 months before and 10.6 months after the acute illness, amounts to 18.5 per cent. By grouping the respiratory diseases together (107 cases of influenza, pneumonia and whooping cough), the change in frequency of seizures is found to be slight. In these 107 cases the average monthly rate of convulsions previous to the acute illness was 5.9, during the month of acute illness 5.9, and following the acute illness 6.4. This gives an increase of 7.8 per cent after the febrile period and no decrease in convulsions during the month of illness as compared with previous months. The changes, then, are found chiefly among cases of nonrespiratory diseases, scarlet fever, mumps, measles, chickenpox, erysipelas, tonsillitis and diphtheria. In this group, composed of ninety-three cases, the monthly rate of convulsions previous to the acute illness was 6.9, during the month of acute illness 4.2, and following the month of acute illness 5.7. These figures give a decrease of 17 per cent following the acute illness as compared with the rate before the acute illness. In this group there is also a decrease in seizures of 33.33 per cent during the month of acute illness as compared with the average rate before and after the acute disease.

Encephalitis and Influenzal Pneumonia Following Vaccination.—A case of encephalitis and influenzal bronchopneumonia occurring in a child twelve days after vaccination for variola is described by Tuthill. Since influenzal encephalitis as an entity has not been established, the clinical diagnosis rested between a sporadic case of encephalitis epidemica and postvaccinal encephalitis. The histopathologic observations in the brain were not similar to those found in epidemic encephalitis, since there was no perivascular infiltration of the gray substance around the ventricles and sylvian aqueduct, except in the lateral areas of the thalamus and the caudate nucleus. The chief areas of perivascular infiltration were in the centrum ovale. The infiltrations in the basal ganglions, the pons and the cerebellum were slight. There were no infiltrations in the meninges, the cord or the medulla oblongata. In spite of some dissimilarity to the reported cases of postvaccinal encephalitis, the histopathology on the whole conforms to that of this disease.

Florida Medical Assn. Journal, Jacksonville

17: 103-148 (Sept.) 1930

Acute Pancreatitis from Diagnostic Standpoint. W. W. Massey, Quincy.—p. 111.
Filariasis Bancrofti. E. S. Nichol, Miami.—p. 116.
Gonorrhea in Woman. J. E. Hall, Miami.—p. 121.
Nonunion of Fractures. J. D. Bell, Pensacola.—p. 124.
Perforation of Cecum by Toothpick: Case. T. H. Wallis, Ocala.—p. 127.
Duties of Obstetrician. H. Q. Jones, Fort Myers.—p. 129.

Georgia Medical Assn. Journal, Atlanta

19: 363-410 (Sept) 1930

Plasmochin in Treatment of Malaria. R. L. Miller, Waynesboro.—p. 363.
Malaria Control in Dougherty County. J. A. Redfearn and T. H. D. Griffitts, Albany.—p. 365.
Treatment of Hemoglobinuric Fever. H. M. Tolleson, Hahira.—p. 369.
Acute Poliomyelitis. H. I. Reynolds, Athens.—p. 374.
Belladonna in Abdominal Diagnosis and Treatment. T. Johnson, Atlanta.—p. 380.
Review of Sociological Section of National Tuberculosis Association, Atlantic City, May, 1929. E. A. Bancker, Jr., Atlanta.—p. 384.
Diagnosis and Management of Breech Presentations. R. B. Crichton, Atlanta.—p. 392.

Journal of Experimental Medicine, Baltimore

52: 457-647 (Oct. 1) 1930

*Immunity to Poliomyelitis in Mothers and New-Born as Shown by Neutralization Test. W. L. Aycock and S. D. Kramer, Burlington, Vt.—p. 457.
*Cultivation of Vaccine Virus. C. P. Li and T. M. Rivers, New York.—p. 465.
Standardization of Antipneumococcic Serum Types I and II. J. Zozaya, J. Boyer and J. Clark, Glenolden, Pa.—p. 471.
Specific Precipitation and Mouse Protection in Type I Antipneumococcus Serum. M. Heidelberger, R. H. P. Sia and F. E. Kendall, New York.—p. 477.
Effect of Inflammatory Reactions on Tissue Immunity. F. M. Hanger, New York.—p. 485.
*Host Factors in Pathogenesis of Pneumococcus Pneumonia: I. Reaction of Lungs to Pneumococcus Autolysate in Sensitized Rabbits. E. A. Sharp and F. G. Blake, New Haven, Conn.—p. 501.
A-Avitaminosis in Chickens: I. Lesions of Respiratory Tract and Relation to Infectious Diseases. O. Seifried, Princeton, N. J.—p. 519.
Id.: II. Lesions of Upper Alimentary Tract and Relation to Infectious Diseases. O. Seifried, Princeton, N. J.—p. 533.
Distribution of Friedländer's Bacilli of Different Types. L. A. Julianelle, New York.—p. 539.
Diseases of Lymphoid and Myeloid Tissues: I. Chemical Metabolism of Normal and Pathologic Lymph Nodes. H. Jackson, Jr., F. Parker, Jr., and E. C. Glover, Boston.—p. 547.
Serologic Reactions in Pneumonia with Nonprotein Somatic Fraction of Pneumococcus. W. S. Tillett and T. Francis, Jr., New York.—p. 561.

*Cutaneous Reactions in Pneumonia: Development of Antibodies Following Intradermal Injection of Type-Specific Polysaccharide. T. Francis, Jr., and W. S. Tillett, New York.—p. 573.
Immunologic Studies in Relation to Suprarenal Gland: VI. a. Trypanosoma Lewisi Infection in Normal Albino Rats. VI. b. Trypanosoma Lewisi Infection in Suprarenalectomized Adult Albino Rats. J. Marmorston-Gottesman, D. Perla and J. Vorzimer, New York.—p. 587.
*T. Lewisi Infection in Albino Rats: I. Effect of Splenectomy on T. Lewisi Infection in Albino Rats and Protective Action of Splenic Autotransplants. II. Effect of Thymectomy and Bilateral Gonadectomy on T. Lewisi Infection in Albino Rats. D. Perla and J. Marmorston-Gottesman, New York.—p. 601.
*Bacterium Granulosis in Relation to Trachoma: Recovery from Experimentally Infected Monkeys and from Human Trachoma. E. B. Tilden and J. R. Tyler, New York.—p. 617.
Transmission of Periodic Ophthalmia of Horses by Means of Filtrable Agent. A. C. Woods and A. M. Chesney, Baltimore.—p. 637.

Immunity to Poliomyelitis in Mothers and New-Born.—Neutralization tests made by Aycock and Kramer for the virus of poliomyelitis on blood serum of urban mothers and their new-born infants showed that immunity was present in ten out of twelve (83 per cent) infants and in ten out of twelve (83 per cent) mothers, with a complete correspondence between mother and infant. These tests point to passive transmission of immunity from mother to infant. Previous tests on other children (aged from 1 to 5 years) indicate that immunity in infants is transitory. Previous observations concerning the extent of immunity in urban adults are confirmed and extended. The results of these tests are in accord with the age distribution of poliomyelitis and parallel corresponding observations in diphtheria.

Cultivation of Vaccine Virus.—A strain of neurovaccine virus was cultivated by Li and Rivers in a medium consisting of minced chick embryo suspended in Tyrode's solution. The virus on cultivation apparently lost none of its essential characteristics. The culture virus can be preserved and stored for long periods of time. Furthermore, the preserved virus can be used to initiate fresh cultures.

Host Factors in Pathogenesis of Pneumococcus Pneumonia.—Sharp and Blake endeavor to determine whether animals exhibiting cutaneous hypersensitiveness to pneumococci would show an acute inflammatory reaction in the lungs when pneumococcus autolysate was brought into contact with the pulmonary tissues and, if so, whether the pulmonary reaction might be shown to be due to the allergic state of the animal, rather than to intrinsic properties of the autolysate. From their results it may be concluded that there is in rabbits a fairly close parallelism between cutaneous and pulmonary hypersensitiveness to pneumococcus autolysate and that the inflammatory response of the pulmonary tissue resulting from contact with the autolysate depends on the allergic state of the animal rather than on inherently injurious substances in the autolysate. The observations are in harmony with the theory that allergy may play a part in the pathogenesis of pneumococcus pneumonia in man.

Cutaneous Reactions in Pneumonia.—Francis and Tillett assert that the majority of patients convalescent from pneumonia due to types I, II and III pneumococci develop at the time of recovery circulating antibodies for the homologous type of organisms. At the same time an immediate wheal and erythema reaction followed the intradermal injection of the homologous type-specific polysaccharide in 100 per cent of type I patients, 58.8 per cent of type II patients, and 44 per cent of type III patients. In a group of eighteen patients repeatedly tested with the type-specific polysaccharides, ten developed in the second or third week of convalescence circulating antibodies for one or more heterologous types. In none of twenty-one control patients was this phenomenon observed. It is suggested that the development of circulating antibodies for heterologous types of pneumococci was associated with the previous intradermal injections of the type-specific polysaccharides.

Bacterium Granulosis in Relation to Trachoma.—Six additional strains of *Bacterium granulosis* have been isolated by Tilden and Tyler from cases of trachoma occurring in the Indian schools of Arizona. The cultures thus obtained are identical morphologically and culturally with those isolated by Noguchi and have induced the same chronic granular conjunctivitis in monkeys. Several additional cultural and biologic characteristics of *Bacterium granulosis* are described. Of importance is the fact that cocaine, in contradistinction to procaine, has a bactericidal effect on the organism. This fact, in view of the common use of cocaine for anesthesia, may explain the negative results of cultivation experiments reported by some workers.

Journal of Infectious Diseases, Chicago

47: 171-291 (Sept.) 1930

Quantitative Determination of Alanine. A. I. Kendall and T. E. Friedemann, Chicago.—p. 171.
Quantitative Determination of Pyruvic Acid in Biologic Substrates. A. I. Kendall and T. E. Friedemann, Chicago.—p. 176.
Methods for Study of Resting Bacteria. A. I. Kendall, T. E. Friedemann and Mitzuteru Ishikawa, Chicago.—p. 186.
Chemical Activity of Resting Bacillus Coli. A. I. Kendall, T. E. Friedemann and Mitzuteru Ishikawa, Chicago.—p. 194.
Chemical Activity of Resting Bacillus Alcaligenes. A. I. Kendall, T. E. Friedemann and Mitzuteru Ishikawa, Chicago.—p. 206.
Chemical Activity of Resting Bacillus Pyogenes-Foetidus. A. I. Kendall, T. E. Friedemann and Mitzuteru Ishikawa, Chicago.—p. 213.
Chemical Activity of Resting Vibrio H/61. A. I. Kendall, T. E. Friedemann and Mitzuteru Ishikawa, Chicago.—p. 219.
Chemical Activity of Resting Staphylococcus Aureus. A. I. Kendall, T. E. Friedemann and Mitzuteru Ishikawa, Chicago.—p. 223.
Chemical Activity of Resting Bacillus Pyocyaneus. A. I. Kendall, T. E. Friedemann and Mitzuteru Ishikawa, Chicago.—p. 229.
Glyoxalase-Like Action of Certain Resting Bacteria. A. I. Kendall, T. E. Friedemann and Mitzuteru Ishikawa, Chicago.—p. 237.
Utilization of Certain Substituted Carbohydrates by Bacteria. A. I. Kendall and C. E. Gross, Chicago.—p. 249.
Production of Histamine by Certain Strains of Gas Bacillus. A. I. Kendall and E. Gebauer, Chicago.—p. 261.
Quantitative Response of Intestine from Sensitized Guinea-Pigs to Homologous Protein and Histamine. A. I. Kendall and F. O. Shumate, Chicago.—p. 267.
Anaphylactic Reaction in Smooth Muscle. A. I. Kendall, Chicago.—p. 284.

Journal of Nervous & Mental Disease, New York

72: 369-488 (Oct.) 1930

*Syndrome of Amyotrophic Lateral Sclerosis in Epidemic Encephalitis. A. M. Ornsteen, Philadelphia.—p. 369.
Mental Disease and Melting Pot. B. Malzberg, New York.—p. 379.
Mental and Emotional Phenomena of Some Psychoses in Relation to Blood Pressure: Diagnostic and Prognostic Significance of Latter. A. Gordon, Philadelphia.—p. 396.
Comment on Mechanism of Narcolepsy. C. P. Wagner, Denver.—p. 405.

Syndrome of Amyotrophic Lateral Sclerosis in Epidemic Encephalitis.—A case of acute epidemic encephalitis soon followed by bulbar palsy and later a syndrome of amyotrophic lateral sclerosis is reported by Ornsteen. A prominent feature of the case is universal myoclonia affecting all of the muscles of the body from the masseters and buccinators down to the calves. Lesions of the anterior horns and pyramidal tracts are inferred to explain the amyotrophic lateral picture, and the pathologic findings by Wimmer in two similar cases are offered in evidence. Lesions of the mesencephalon are considered to be the cause of the universal myoclonia rather than ganglion cell irritation in the motor nuclei of cranial nerves and anterior spinal horns. Amyotrophic lateral sclerosis may be related to an ancient infection. Authoritative opinions as to the nature and causation of amyotrophic lateral sclerosis are reviewed.

Medical Journal and Record, New York

132: 313-364 (Oct. 1) 1930

General Anesthesia with Sodium Amytal. J. E. Struthers, Denver.—p. 313.
Endocarditis. A. E. Mark, Hollywood, Calif.—p. 315.
Place of Periodic Health Examination in Practice of Medicine Today. O. H. Leber, New York.—p. 318.
Myofascitis. W. E. Fitch, Bedford, Pa.—p. 320.
Diphtheria and Typhoid Carriers: Suggestions on How Best to Ward Off Epidemics. M. Feldman, New York.—p. 325.
Value of Cecostomy and Enterostomy in Acute Peritonitis. H. Pike, New York.—p. 328.
Medical Education. O. T. Osborne, New Haven, Conn.—p. 329.
Pityriasis Lichenoides et Varioliformis Acuta (Habermann). F. Wise and M. B. Sulzberger, New York.—p. 331.
Diagnosis and Treatment of Scabies. D. W. Montgomery and G. D. Culver, San Francisco.—p. 334.
Early or Warning Signs of Impending Gangrene in Diabetes. D. W. Kramer, Philadelphia.—p. 338.
Actinomycosis: Clinical Pathologic and Bacteriologic Study. H. P. Jacobson, Los Angeles.—p. 342.
Colloidal Metals in Treatment of Malignancy. N. Alpert, Baltimore. p. 347.
La Maladie de la Baie de St. Paul. W. R. Riddell, Toronto.—p. 349.
Medicinal Virtues of Sponges. E. Podolsky, New York.—p. 350.

Michigan State M. Soc. Journal, Grand Rapids

29: 691-756 (Oct.) 1930

Passing of Family Doctor and Practice of Future. J. D. Brook, Grandville.—p. 691.
Modern Medicine. W. H. Sawyer, Hillsdale.—p. 696.
Legal Aspects of Roentgen Ray. S. W. Donaldson, Ann Arbor.—p. 700.
*Infarcts of Cardiac Origin. M. A. Mortensen, Battle Creek.—p. 710.
Malignant Melanoma. P. D. Amadon, Ann Arbor.—p. 713.
Backache as Gynecologic Symptom. L. G. Baldwin, Ann Arbor.—p. 718.
Rheumatic Cardiac Disease: Newer Concepts of Rheumatic Fever. F. A. Willius, Rochester, Minn.—p. 721.
Hydrops Gravidarum: Three Cases. B. L. Lieberman, Detroit.—p. 727.
Famous Men in Medical History: I. William Beaumont. C. L. Hudson, Tyler, Texas.—p. 729.
Work of Public Health Committee. L. O. Geib, Detroit.—p. 734.
Michigan's Department of Health. C. C. Slemons, Lansing.—p. 739.

Infarcts of Cardiac Origin.—Mortensen asserts that the greater percentage of infarcts are of cardiac origin, thrombosis occurring in the heart in the following order of frequency: (1) right auricle; (2) left ventricle; (3) left auricle; (4) right ventricle. Thrombosis in either side of the heart may produce infarcts in both pulmonary and peripheral circulation when a patent foramen ovale exists, but these cases are rare. The three types of emboli originating in the heart are (1) small mycotic vegetations associated with endocarditis; (2) a large type of emboli that develop where circulation is retarded or stagnant, as in auricular appendages, apexes of ventricles, and between columnae carni; (3) ball thrombus, which is rare and always in the left auricle and associated with mitral stenosis. Blood platelets are believed to be the nucleus of a thrombus, an accumulation of these being caused by injury (bacterial or otherwise) to endothelial surfaces. Stasis in the blood stream is a predisposing factor, and cardiac disorder nearly always precedes the formation of thrombi. Types of cases in which thrombosis and emboli are liable to occur are discussed, and the management of cases is outlined.

Public Health Reports, Washington, D. C.

45: 2221-2275 (Sept. 19) 1930

Electron Equilibria in Biologic Systems: IV. Adaptation of Glass Electrode to Continuous Measurement of Hydrogen Ion Concentration of Circulating Blood. C. Voegtlin, F. DeEds and H. Kahler.—p. 2223.

45: 2277-2363 (Sept. 26) 1930

Mortality from Influenza and Pneumonia in Fifty Large Cities of United States, 1910-1929. S. D. Collins, W. H. Frost, M. Gover and E. Sydenstricker.—p. 2277.

45: 2365-2427 (Oct. 3) 1930

Training of Health Officers. J. W. Mountin.—p. 2378.
Zone Phenomenon in Human Serum: Comparison of Antitularense with Antiabortus Serum. R. R. Spencer.—p. 2383.

Radiology, St. Paul

15: 437-530 (Oct.) 1930

New Instrument for Measuring X-Radiation. G. Failla, New York.—p. 437.
*Early Recognition of Gastric Ulcer and Carcinoma as Revealed by Roentgen Studies. M. Feldman, Baltimore.—p. 449.
Quantum Energy of Roentgen Rays: New Method of Measuring It. A. Mutscheller, New York.—p. 460.
*Paravertebral Abscess: Early Roentgen Sign of Tuberculous Spondylitis. L. G. Rigler, W. H. Ude and M. B. Hanson, Minneapolis.—p. 471.
Urography by Uroselectan. I. S. Hirsch, New York.—p. 480.
*Concept of Arthritis. L. H. Mayers, Chicago.—p. 487.
Radiologic Evidences of Urologic Diseases in Infancy and Childhood. P. B. Goodwin, Peoria, Ill.—p. 498.

Gastric Ulcer and Carcinoma as Revealed by Roentgen Studies.—Feldman asserts that a stereotyped, fixed or straight line appearance of the curvatures of the stomach as revealed by roentgen examination occurs as the result of a thickening, induration and infiltration of the tissues of this organ. Diminished or absent peristalsis or a break in the peristaltic wave is probably the earliest roentgen sign of gastric disease. A small stomach, located high, presenting the fixed and stereotyped appearance, emptying rapidly, even though showing no filling defect, is frequently the result of a carcinoma at the cardia. Spasm is frequently the result of a gastric lesion; the incisura is a typical example. It occurred in 16 per cent of the cases of ulceration. The presence of a filling defect is not always necessary in order to establish the roentgen diagnosis of a gastric lesion. The proper interpretation and evaluation of the roentgen signs here described is highly important in the early diagnosis of gastric disease.

Paravertebral Abscess: Early Roentgen Sign of Tuberculous Spondylitis.—Cases are cited by Rigler et al. as proof that paravertebral abscess occurs commonly in tuberculosis of the thoracic vertebrae but is clinically unrecognized in many cases. Its roentgen diagnosis is important because it is almost pathognomonic of tuberculosis spondylitis. It may be the earliest roentgen sign of tuberculous spondylitis appearing before there are any visible changes in the bodies of the vertebrae. Two cases of this type are reported. It may be present in characteristic form while the changes in the vertebral column are still minimal or not entirely diagnostic roentgenographically. Two cases of this type are reported. Paravertebral abscess may overlap the shadow of the heart in the ordinary chest roentgenogram, simulating a mediastinal process.

Concept of Arthritis.—Mayers concludes that arthritis is a chronic infective condition, in which the joint manifestations are the end-products of a long period of intoxication, which intoxication results from an infective process usually with the streptococcus.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Bristol Medico-Chirurgical Journal

47: 169-254 (Autumn) 1930

*Epilepsy. J. V. Blachford.—p. 169.
*Five Years' Experience of Surgery in Exophthalmic Goiter. A. R. Short.—p. 185.
Treatment of Exophthalmic Goiter. C. E. K. Herapath.—p. 193.
*Changes in Spleen in Acute Pyogenic Infections. T. F. R. Hewer.—p. 197.
Von Recklinghausen's Disease (Multiple Neurofibromata) with Spontaneous Fractures: Case. L. P. Ashton.—p. 219.
*Origin and Significance of Tuberculosis of Tracheobronchial Lymph Nodes of Lung. L. R. Jordan.—p. 225.

Epilepsy.—Blachford concludes from his review that: 1. Ordinary grand mal is produced by impulses that arise in the neostriate body and act on the cortex. 2. The mental condition of epileptic patients immediately preceding and in the intervals between the seizures is due to irritation of cortical sensorimotor cells by impulses originating in the striate body. 3. The neostriate body, consisting of the putamen and the caudate nucleus, is the center for the association of the muscle sense with the other senses. And as a corollary that: 4. Drugs which act primarily on the basal ganglions in epilepsy are to be preferred to those which act directly on the cortex, as being more efficient and less likely to damage the more highly developed but less definitely organized cortical cells.

Five Years of Surgery in Exophthalmic Goiter.—In Short's opinion, all patients with toxic adenoma of the thyroid should be operated on, and all patients with classic exophthalmic goiter after a year's duration, unless mentally deranged. There is a good deal of reason for operating also in early cases. Auricular fibrillation and glycosuria will probably clear up after subtotal thyroidectomy.

Changes in Spleen in Acute Pyogenic Infections.—One hundred and eighty cases of acute infections, irrespective of whether they were said to present "acute splenic tumors" or not, were analyzed by Hewer in order to determine the degree of splenic change by observing the relative number of large mononuclear cells present in the pulp. The results of this study show that in acute pyogenic infections splenomegaly is due to an increase in the number of cells in the pulp, and in the malpighian bodies in some cases. The most striking cells that are present are large basophilic nongranular mononuclear cells, which are identical with myeloblasts. The degree of splenic change corresponds with the leukocytosis. The identity of the infecting organism is of less importance *quâ* the spleen than the grade of leukocytosis it produces. Pyrexia alone does not produce "acute splenic tumor." The production of "acute splenic tumor" is not essential for, or directly related with, antibody formation.

Tuberculosis of Tracheobronchial Lymph Nodes of Lung.—Analysis and study of thirty-three cases has convinced Jordan that the majority of evidence at present points to tuberculous infection of the tracheobronchial glands being secondary to a primary air-borne infection in the lung tissue. Tuberculosis,

especially of the tracheobronchial glands in children under 5 years, is not dormant, but in the majority of cases ends in fatal disease. A considerable proportion of acute miliary tuberculosis, especially with tuberculous meningitis, in adults has its origin in tracheobronchial tuberculosis. All the cases of tuberculous meningitis were blood-borne, and no explanation is offered for the absence of visible primary foci in these cases. Tuberculous infection in childhood increases resistance to the disease but at the same time is a source of danger.

Lancet, London

2: 673-724 (Sept. 27) 1930

Thermal Adjustment of Man and Animals to External Conditions. C. J. Martin.—p. 673.
*Guanidine-Like Substances in Blood in Experimental Yellow Fever. G. M. Findlay and E. Hindle.—p. 678.
Congenital Arteriovenous Fistula. D. De Witt Lewis.—p. 680.
*Excretion Urography. R. V. Cooke.—p. 686.
Value of Avertin in Unusual Circumstances: Case. J. Blomfield.—p. 689.
Lysozyme Content of Saliva in Psychotics. L. S. Penrose.—p. 689.
Adjuvants to Malarial Treatment of General Paralysis. J. H. Ewen.—p. 690.
Osteoclast with Screw Control. A. MacLennan.—p. 690.

Guanidine-Like Substances in Blood in Yellow Fever.—Findlay and Hindle conclude from their experiments that in experimental yellow fever in monkeys there is an increase in the blood content of guanidine-like substances, similar to that associated with other conditions involving liver necrosis. The increase in guanidine-like substances can be reduced by the administration of calcium lactate. Calcium lactate does not prevent death in monkeys suffering from yellow fever but does tend to prevent hemorrhages.

Excretion Urography.—When a cystoscope cannot be passed or ureteral catheterization (or any instrumentation) is undesirable, difficult or impossible, Cooke says he has at his disposal an alternative method of visualizing the renal pelvis and calices. In the presence of ureteral obstruction a clear ureterogram may be secured. The method may be of value in the investigation of the urologic case in the child; in cases of severe cystitis—tuberculous or otherwise—in which catheterization is difficult; in cases of profuse hematuria; in cases of urethral stricture and enlarged prostate; and in the subsequent examination of a kidney, the ureters of which have been transplanted. The shadow cast by the excreting renal substance itself is enhanced during the excretory process, so that the size and shape of the kidney substance are often clearly seen. The excretion rate and the intensity of the pyelograms give a graphic representation of the function of each kidney at the time. This fact in itself may be valuable in dealing with certain cases, such as hydronephrosis with blocked ureters. The excretion rate, which represents the total renal efficiency at the time, may be ascertained by measuring the output in the urine, or, more simply, by following the alterations in the specific gravity of the urine. This has not been found of much practical value. It is important in interpreting the results from the standpoint of function to bear in mind that the functional activity of a kidney can be temporarily inhibited, and the nonvisualization at a particular examination does not necessarily mean a permanently damaged kidney. The method has its limitations, since the shadows depend on renal function, and therefore no shadow, or an undecipherable one, may be obtained in pathologic renal conditions. To make a precise diagnosis, recourse to the older method may be necessary, and since in many cases cystoscopy is absolutely essential it is still quicker (and cheaper) to proceed to ureteral catheterization and retrograde pyelography in the average case. Excretion urography is as yet somewhat expensive and uncertain. There must always needs be a percentage of failures, but undoubtedly a most valuable accessory investigatory method has been placed in the hands of the profession.

2: 725-778 (Oct. 4) 1930

Need for Psychopathology. M. Culpin.—p. 725.
*Pulmonary Tuberculosis in General Practice. W. B. Wood.—p. 726.
*Thrombophlebitis Migrans. J. A. Ryle.—p. 731.
Treatment of Empyema in Children. D. Browne.—p. 733.
Acute Torsion of Spermatic Cord. H. Upcott.—p. 739.
Elimination of Arsenic After Sheep Dipping. T. Oliver.—p. 740.
Adenomyxomatous Polypoid Tumor of Stomach. G. N. Clark.—p. 740.

Pulmonary Tuberculosis in General Practice.—Wood stresses this idea: When a young person of either sex complains of a cough with expectoration, tuberculosis must always be borne in mind. It can be excluded with some confidence if five negative conditions are satisfied. It is unlikely that tuberculosis is responsible for the cough if: (1) there is no history of pleural effusion; (2) there is no history of hemoptysis; (3) no crepitations are heard after coughing in any danger zones; (4) no tubercle bacilli are found in three successive sputum examinations; (5) roentgen examination is negative. If the first four conditions are satisfied a short period of observation with expectant treatment may suffice, but if the practitioner's suspicions are aroused by the patient's appearance or manner, by a history of contact with infection, or by the continuance of symptoms for more than a fortnight, a roentgenogram is essential. If the services of a radiologist with special experience in chest work are not available, a second opinion should be obtained. In some cases a short period of institutional observation may be advisable.

Thrombophlebitis Migrans.—Thrombophlebitis migrans is defined by Ryle as a disease in which phlebitis appearing usually in small lengths of superficial peripheral veins is sometimes followed by symptoms of inflammation with small vascular obstructions in the lungs, the abdomen, and more rarely in the heart and the brain. Visceral thromboses may also precede or occur without superficial lesions. The disease tends to run a long and tedious and often interrupted course. Fever and leukocytosis commonly accompany each fresh development. Although it may give rise to serious illness and much anxiety, the prognosis is favorable, presumably because the thromboses are venous, because they do not as a rule spread to larger trunks, and because there is no associated septicemia. The pulmonary thromboses may be heralded by agonizing bouts of spasmodic pain or by ordinary pleuritic symptoms which precede hemoptysis, when it occurs, by hours or days. A faintly turbid and blood-stained pleuritic effusion sometimes follows. The abdominal thromboses are characterized by pain and distention and occasionally by melena. The symptoms of the cardiac and cerebral thromboses do not differ from similar lesions of other causation, but, as small veins rather than arteries are probably involved, prognosis again need not necessarily be regarded as unfavorable. Treatment is expectant and symptomatic. Liberal fluids and potassium citrate may reasonably be prescribed. Obvious focal infections should receive attention at the proper time. Perhaps the most important single conclusion to be drawn from a study of these cases is that thrombophlebitis of this type is to be remembered as an occasional cause of cerebral, cardiac, pulmonary and abdominal accidents that might otherwise prove difficult to explain. Five cases are reported by Ryle.

Medical Journal of Australia, Sydney

2: 351-380 (Sept. 13) 1930

*Local Venesection in Treatment of Snake Bite. C. H. Kellaway.—p. 351.
Influence of Extracts of Prickly Pear on Diabetes Mellitus. W. W. Ingram and G. V. Rudd.—p. 360.
White Cedar or Azedarach. J. MacPherson.—p. 363.
Treatment of Blindness Associated with Retinitis Pigmentosa. N. D. Royle.—p. 364.
Cerebrospinal Fever. W. E. Hasker.—p. 365.
Treatment of Deafness by Zund-Burguet Method. R. H. Bettington.—p. 366.

Local Venesection in Treatment of Snake Bite.—Experiments made by Kellaway on sheep injected with the venoms of the death adder and tiger snake have demonstrated the value of treatment by local venesection when this can be applied immediately. Those with copperhead and brown snake venoms were less satisfactory. Protection was afforded against from one to one and a half certainly lethal doses of the venoms of the death adder and tiger snake and against from one to one and a fourth certainly lethal doses of the venoms of the brown snake and copperhead. The ligatures in these experiments were applied above the carpal joint in the forelimb and therefore the blood flow to the ligated part, though nearly, was not always completely obstructed. This did not seriously affect the results when venesection was carried out at once, but when treatment was delayed to make the experiments more comparable with practical conditions the results were not so satisfactory. The certainly lethal doses of brown snake venom by subcutaneous and intravenous injection have been determined for sheep. The "thrombase" of this venom is extremely potent

in this species, the subcutaneous-intravenous index being approximately 20. Despite this high index, treatment by simple ligature round the metacarpal bone was not effective. The "thrombase" of brown snake venom is apparently highly diffusible and, when injected subcutaneously or even intradermally, finds its way rapidly into the venous blood in sufficient concentration to cause death by intravascular coagulation. In bites by the brown snake it is urgently necessary to apply the ligature immediately and excise the bitten area. Treatment by venesection, as soon as this is practicable, should prove of definite value in cases in which excision has not been done. It is unlikely that univalent antiserum will ever be available for treatment of the bites of this snake or of other species of the genus *Demansia*. These experiments afford further evidence of the absorption of Australian snake venoms directly into the blood stream.

Tubercle, London

12: 1-48 (Oct.) 1930

Survey of Findings in Five Years' Work on Tuberculosis. J. A. Struthers.—p. 1. (C'td.)
Treatment of Tuberculosis with Turtle Vaccine. W. C. Fowler.—p. 12.
Results of Artificial Light Treatment for Tuberculosis. G. L. Cox.—p. 17.
*Significance of Quantitative Intradermal Tuberculin Reaction in Prognosis of Tuberculosis. J. W. Lobban.—p. 19.

Tuberculin Reaction in Prognosis of Tuberculosis.—From the results obtained with the intradermal tuberculin test in the tuberculous and in the control series of cases, Lobban is led to believe that the earlier the stage of disease and the less the degree of infection, a positive reaction can be obtained with a greater dilution of tuberculin. As the disease advances the patient fails to react to the greater dilutions, and lesser dilutions are necessary before a positive reaction can be obtained. Further, it becomes apparent that the intradermal tuberculin test in tuberculosis, when repeated at intervals, shows a more marked reaction when the condition is improving, and fails to appear or become positive when a lesser dilution is employed when the condition is retrogressing. It is thus a guide as to progress in addition to the clinical signs. A test that becomes more marked in reaction, e. g., from + to ++ or +++, gives an indication that the lesion is improving and is of good prognostic value, whereas when a patient fails to react to the original dilution of tuberculin used and repeatedly fails to react with a lesser dilution, the outlook is not hopeful.

National Medical Journal of China, Peiping

16: 325-504 (Aug.) 1930

Dissociation of Cholera Vibrio. H. Yu, P. H. Yang and C. C. Yang.—p. 325.
Effect of Animal Passage on Pathogenic Monilia. T. J. Kurotchkin and C. E. Lim.—p. 332.
*Serologic Relationship Among Yeastlike Fungi. C. E. Lim and T. J. Kurotchkin.—p. 338.
*Giardia Intestinalis in North China. S. M. Tao.—p. 347.
*Sclerema Neonatorum. Tung-Tou Chen.—p. 360.
Effect of Vitamin Deficiency on Light Sense in Cases of Xerosis and Pigmentation of Conjunctiva. C. H. Chou.—p. 365.
*Causes of Blindness Among Chinese. S. P. Chang.—p. 370.
Puncture and Irrigation of Maxillary Sinus. M. L. Hu.—p. 379.
Field of Otolaryngology in China. A. M. Dunlap.—p. 387.
Causes of Epidemics. J. W. H. Chun.—p. 395.
Hydatid Cyst in North China. H. H. Loucks.—p. 402.

Serologic Relationship Among Yeastlike Fungi.—A simple and sensitive method for the serologic study of several strains of monilias and *Saccharomyces* has been found by Lim and Kurotchkin through the use of the water soluble specific substance. The different monilias form a homogeneous group of organisms, the individual species of which are found to be closely related according to their cross serologic reactions. Monilias and *Saccharomyces* cannot be differentiated on the basis of their cross serologic reactions. The high sensitivity of the water soluble specific substance derived from the monilias and *Saccharomyces* suggests the use of this substance as an antigen in the serologic diagnosis of human infections due to yeastlike fungi.

Giardia Intestinalis in North China.—An analysis is given by Tao of 649 cases of positive *Giardia* infection examined at the Peiping Union Medical College Hospital from 1925 to 1930. A definite relationship between *Giardia* infection and gastro-intestinal symptoms could not be established. There are 249 patients, or 38.37 per cent, with gastro-intestinal symptoms and 400, or 61.63 per cent, without gastro-intestinal symptoms. The percentage of diarrhea is markedly high in young children. It gives 48.34 per cent of children from 1 to 5 years of age, 22.86 per cent of children from 6 to 15, and 15.75 per cent of adults. Children from 1 to 15 years of age are found to show 23.82 per cent of dyspepsia and 19.59 per cent of diarrhea in pure infection and 13.77 per cent of dyspepsia and 10.18 per cent of diarrhea in mixed infection. One has, however, to keep in mind that diarrhea is a common complaint in young children.

Sclerema Neonatorum.—The subcutaneous fat and the fat-free skin of eight sclerema and four nonsclerema babies were analyzed by Chen. The fats showed no difference in melting point, solidifying point, iodine number, saponification value and acetyl number. The calcium and phosphorus contents of the fat-free tissues of the normal and sclerema babies were also about the same. These observations do not lend support to the hypothesis that sclerema neonatorum is caused by a chemical change of the cutaneous tissue.

Causes of Blindness Among Chinese.—From May, 1928, to April, 1929, 336 (10.2 per cent) blind patients were seen among 3,279 admissions to the eye clinic of the Peiping Union Medical College Hospital. In 18.9 per cent of these blind persons the cause of blindness could not be ascertained. The main determinable causes were in the following descending order of frequency: keratomalacia, 34.5 per cent; trachoma, 14 per cent; glaucoma, 8.9 per cent; syphilis, 5 per cent; cataract, 5 per cent; gonorrheal ophthalmia, 5 per cent; injuries, 4.2 per cent; tuberculosis, 2.1 per cent; neoplasms, 0.6 per cent; smallpox, 0.3 per cent. With the exception of keratomalacia and an interchange of place of glaucoma and cataract, the main causes of blindness occupied the same relative position in Ling's series and in Chang's analysis of cases. Keratomalacia was an insignificant cause, 0.52 per cent (in only four eyes) in Ling's 760 blind patients, while it was responsible for 116 of Chang's series of 336 blind, or 34.5 per cent. The cause of this remarkable difference is chiefly the civil war, as a great number of eye patients during the last year were soldiers. On account of the restricted finances of the armies and the difficulty of seeking aid in the early stage of the disease, keratomalacia spread.

Annales de Médecine, Paris

28: 105-199 (July) 1930

Hydric Equilibrium of Organism in Pathogenesis of Edemas. M. Labbé.—p. 105.
*Muscular Uremia. H. Gounelle.—p. 126.
Disturbances in Cardiac Rhythm in Experimental Diphtheria. R. Lutembacher.—p. 153.
Hypertrophy and Dilatation of Right Side of Heart of Pulmonary Origin. I. Hatzieganu.—p. 158.
Variations of Glycemia in Shock Phenomena. S. Neumark.—p. 162.
Gonococcic Allergy. F. Benoist.—p. 174.

Muscular Uremia.—Gounelle describes several cases of muscular uremia that he has observed and mentions a number of cases described by other authors. The disease presents two distinct clinical forms, myoclonic and myotonic, according to the nature of the muscular reactions involved. In both forms one observes the usual symptoms of uremia: torpor, somnolence, coma, gastro-intestinal disturbances, vomiting, diarrhea, and at times constipation, hypothermia, myosis, oliguria and albuminuria. Hypertension is not always present; however, when it does occur it may be regarded as a pathognomonic symptom in connection with the rest of the clinical picture. The myoclonic form is characterized by intermittent clonic contractions in various muscles and muscular groups. The contractions are practically painless and may affect any part of the body, although the four limbs, especially the arms, are most frequently attacked. Hiccups also occur frequently. In the myotonic form the contractions are persistent, involuntary and always painful; in other words, a "cramp." They vary in intensity and duration and may be localized in any group of muscles. Sometimes a meningeal syndrome resembling meningitis appears in which the spasm attacks the spinal region; this can usually be distinguished from meningitis, however, by the fact that in muscular uremia the cerebrospinal fluid is almost always normal. The spasm is sometimes so generalized that it resembles a state of tetanus; even opisthotonos may appear and during it the patient frequently dies. A trust-

worthy diagnosis may usually be made by observing the specific muscular syndrome in connection with the classic pathognomonic indications of general uremia. It is necessary to distinguish the myoclonic form from the epileptic form. The latter, however, is usually due to hydropigenous nephritis, hypertension or retention of chlorine in the cerebral gray matter and presents different clinical symptoms. The pathogenesis of muscular uremia is not yet fully established. Probably the soundest and best tested theory is that it is caused by azotemia. There is some basis also for the theory of cerebral retention of chlorine. The author suggests that in many ways the condition resembles the results of parathyroid insufficiency.

Archives des Maladies du Cœur, etc., Paris

23: 561-624 (Sept.) 1930

*Anacrotic Pulse. C. Laubry, P. Soulié and A. van Bogaert.—p. 561.
Electrocardiographic Translation of Auricular Preponderance in Mitral Stenosis. I. Chvartzman.—p. 603.

Anacrotic Pulse.—The contradictory views expressed by various authors led Laubry et al. to make a thorough study of the problem of anacrotism of the pulse in order to determine its exact nature and origin. For the experiments they used a pneumatic cuff connected with a manometer and a Pachon-Boulitte oscillometric ampule. The inscription was made either by the optical method or on smoked paper. The manometer made it possible to read the pressure under which the graph was made. After a long series of tests the authors are convinced that true anacrotism of the pulse is due to the exaggeration on the arteriocardiogram of the secondary systolic wave, coincident or not with the decline of the primary wave. This anacrotism, corresponding to that of the heart, is the expression of conflict of an intense and prolonged ventricular effort, projecting its blood wave into a resisting arterial system. The conflict causes an irregularity in the form of a camel's back in the cardiogram and the exaggeration of the second systolic wave of the arteriogram. Since anacrotism is a function of peripheral resistance, myocardial effort and the amount of blood expelled, it is exaggerated when the three influences act together and it disappears when they are weakened, especially when the myocardial element is lacking. The secondary systolic wave surpasses the summit of the primary wave more easily when the latter is low. Anacrotism of the pulse and heart is not a sign of severe myocardial deficiency but is the graphic representation of an abnormal though easily tolerated peripheral condition. One observes a physiologic anacrotism in the arteriograms taken at minimal pressure, an experimental pseudo-anacrotism engendered by a stenosis of the arterial system, and a latent or concealed anacrotism in connection with pure aortic stenosis.

Journal de Chirurgie, Paris

36: 161-352 (Aug.) 1930

Surgical Treatment of Obstetric Paralysis. M. E. Lauwers.—p. 161.
*Transplantation of Patella. P. Moulonguet.—p. 175.
Subcalcaneous Exostosis. F. Ferrari and F. Morand.—p. 180.

Transplantation of Patella.—Moulonguet regards transplantation of the patella as the operation of choice to remedy a loss of muscular substance in the lower part of the femoral quadriceps. If the defect is filled with grafts of muscular tissue, the quadriceps is weakened and adherences and ossification are also likely to result, which prevent bending of the knee. On the other hand, the transplantation of the patella to meet the quadriceps, with reinsertion of the muscle, gives excellent anatomic and functional results. This operation was first performed by Lecène, who used the following method: A prefemoral incision is made in the shape of the letter Z. The large fragment is turned down outside. The diseased portions are removed. The patella is completely freed at each side. Section of the tendon is made at two levels extending across almost the entire width of the tendon, this lengthening it sufficiently. The patella is then raised so that it may be sutured to the lower end of the quadriceps. The edges of the patella are also sutured to the external fibers. The patella is thus completely reinserted and the articulation closed. Within a few months the patient is able to walk with ease and full mobility of the knee.

Lyon Chirurgical

27: 401-536 (July-Aug.) 1930

*Secondary Cancer of Peritoneum. J. Cottalorda and A. Caire.—p. 401.
Influence of Sympathetic Operations on Leukocytosis. J. Iscenko and O. Proscura.—p. 426.
Kümmel-Verneuil Disease. O. Francke.—p. 431.
Total Hysterectomy in Cancer of Neck of Uterus. R. Labry.—p. 445.

Secondary Cancer of Peritoneum.—Cottalorda and Caire describe twelve cases of secondary cancer of the peritoneum that they have studied. Although the disease is practically always fatal and seems to be beyond the resources of surgical treatment, they have found that in most cases an exploratory laparotomy may be made with safety, which sometimes reveals tumors that may be removed. They feel, moreover, that if it were possible to make an earlier diagnosis a method of treatment might be possible. With this in mind, they consider an exact knowledge of the anatomic and clinical characteristics of secondary cancer of the peritoneum well worth while. The condition is the result of a primary growth in the genitalia or the stomach that extends to the various regions of the peritoneum. The three chief symptoms are ascites, tumors and intestinal occlusion. The abdomen is greatly enlarged and filled with a bloody fluid that contains leukocytes of various types, hemolyzed erythrocytes, lymphocytes, and some rare polymorphonuclears, and that renews itself rapidly after puncture. The tumors themselves are made up of masses of grayish white granulations and are in general the size of an orange or a fetal head. They are usually attached to the abdominal wall, which itself has a covering of the same granulations, but are in rare instances found floating in the fluid. They are usually observed in the subumbilical region near the hypogastrium or the iliac fossa but sometimes in the two hypochondria. The occlusion of the small intestine that results is caused sometimes by adhesions or tumoral compression but usually by a neoplastic retractile mesenteritis that draws the small intestine backward and flattens it firmly against the posterior abdominal wall. However, the common clinical manifestations of this intestinal occlusion make accurate diagnosis difficult. The various forms in which the disease appears in the clinic as well as the fact that the symptoms do not become specific until the cancer is well developed are also obstacles that hinder the early diagnosis that is desirable.

Presse Médicale, Paris

38: 1217-1232 (Sept. 10) 1930

*Errors in Application of Insulin Treatment in Diabetes. M. Labbé.—p. 1217.
Pulmonary Silicosis. A. Feil.—p. 1220.
*Hernial Contusions. R. Chabrut.—p. 1223.

Errors in Application of Insulin Treatment in Diabetes.—Although the correct method of insulin treatment has long been established, Labbé feels that there are still many misconceptions of the nature and application of this treatment prevalent among both laymen and physicians. He discusses several of these, as follows: 1. The fallacious belief that insulin in itself can cure diabetes has led physicians to employ this treatment with no attention to diet, in abnormal quantities, or at irregular intervals rather than constantly. This is, of course, useless and even dangerous, since the action of insulin merely reestablishes the alimentary metabolism by permitting the utilization of from 1 to 1.25 Gm. of carbohydrates for each unit of insulin injected. It does not remove the cause of the diabetes but merely controls from day to day the hyperglycemia. 2. The fact that abandoning insulin treatment causes severe and often fatal results has intimidated certain physicians and caused them to avoid the prescription of insulin. It is true, to be sure, that it is dangerous to discontinue the treatment, but the danger is due not to the fact that insulin has been used but to the seriousness of the diabetic condition itself, which would have proved fatal without the use of insulin, whereas the treatment allows the patient to live in apparent health. 3. The reactions of hyperinsulinism or hypoglycemia which often result are alarming to many. The author, however, has never observed any really serious effects, although patients often relapse into a state of coma for a few minutes. Even this may be avoided if injections of insulin are given a quarter of an hour before eating and a quantity of carbohydrates corresponding to the dose of insulin is included in the meal. 4. To avoid the constant injections that

are so distasteful to many patients, numerous methods of administering insulin have been introduced. The only effective method, however, is the long established one of subcutaneous injection. Labbé particularly condemns the present propaganda for insulin tablets, many varieties of which are now on the market. Insulin in this form can have little or no effect, and the abandonment of injections for tablets taken by mouth has caused disastrous results in a number of patients.

Hernial Contusions.—Chabrut describes several cases that show what serious results can follow even a slight contusion of a hernia. Whether the contusion is followed by a strangulation (complete or incomplete), a generalized peritonitis or a hemorrhage, the only safe rule to follow is to operate as quickly as possible, even when reduction of the hernia takes place spontaneously. Early operation is especially important when peritonitis is involved; for instance, in ten cases observed, only two patients survived, on both of whom operation was performed within two hours after the contusion.

Revue de Chirurgie, Paris

67: 563-646, 1929

Osteosynthesis of Femoral Diaphysis with Knee Flexed. A. Parcelier and A. Chenut.—p. 563.
*Surgical Treatment of Sigmoiditis. X. Delore.—p. 597.
Functional Examination of Biliary Passages by Roentgen Exploration After Cholecystotomy. L. Bérard and P. Mallet-Guy.—p. 614.

Surgical Treatment of Sigmoiditis.—Delore reports seven cases of sigmoiditis and draws the following conclusions as to the surgical methods that are most efficacious in combating the disease: In acute gangrenous forms, treatment should be limited, in general, to drainage by means of an artificial cecal or colic anus; resection is rarely practicable. When a perisigmoidal abscess is present, one should first incise and drain the abscess; later, especially when diverticulitis is present, a secondary resection is often necessary, which to be harmless should follow certain rules, especially the creation of a preliminary artificial anus. While chronic sigmoiditis may sometimes be cured by a simple medical treatment, colostomy is advisable. When diverticulitis is associated with the chronic sigmoiditis, resection preceded by colostomy is efficacious. When salpingitis is present, by first treating it a simple chronic sigmoiditis may also be cured; if diverticulitis also is present, however, resection is usually necessary, the formation of an artificial anus being valuable as an additional precaution.

Schweizerische medizinische Wochenschrift, Basel

60: 813-836 (Aug. 30) 1930

Guttadiaphot Method of Meyer, Bierast and Schilling. H. C. Frey.—p. 813.
*Significance of Benzene Derivatives of Intestinal Putrefaction in Etiology of Cancer. E. Grandjean.—p. 823.
Treatment of Rhinopharyngitis Chronica Sicca with Secondary Auditory Disturbances. H. Erdmann.—p. 828.
Expulsion of Placenta Before Birth. Barrelet.—p. 828.

Benzene Derivatives of Intestinal Putrefaction in Etiology of Cancer.—Grandjean directs attention to the fact that cancer frequency is greatest among peoples with a comparatively high standard of living and to the fact that more than 63 per cent of cancers affect the digestive organs; this indicates that the diet has an etiologic influence. Among peoples with a lactovegetarian diet, such as the Hindus and many primitive peoples, cancer is much less frequent than in countries where the foods provide large quantities of proteins, especially those of animal origin. The author points out that the benzene derivatives of intestinal putrefaction resulting from diets rich in animal proteins exert a continuous growth stimulation on the healthy cells and gradually the constantly irritated tissues develop into malignant tumors. However, it is not only in the digestive organs, particularly the intestine, that benzene derivatives are formed as the result of protein putrefaction; on the contrary, they develop wherever in suppurative processes disintegration of protein by anaerobic bacteria takes place, for instance in the lungs, in the female genitalia, in abscesses of the teeth, in alveolar pyorrhea and in ulcers. The theory that the benzene derivatives are of significance in the etiology of cancer is also proved by the fact that occupational cancers are most frequent in workers who come in contact with benzene and coal tar products. To reduce the frequency of cancer, especially of the intestinal tract, it is therefore advisable to decrease to a minimum the intake of those proteins that form benzene derivatives; namely, meat, eggs and the plant proteins contained in legumes, such as beans, peas and lentils. The proteins required by the organism should, as much as possible, be supplied in the form of milk and milk products, because these give rise to a bacterial flora that is antagonistic to the bacteria of putrefaction. Regular defecation is likewise significant in the prophylaxis of cancer of the digestive organs.

Archivio Italiano di Chirurgia, Bologna

26: 541-648 (Aug.) 1930

Pleuropulmonary Complications of Abdominal Diseases: Postoperative Pulmonary Complications. E. Debenedetti.—p. 541.
*Fat Necrosis of Breast. R. Brancati.—p. 585.
Pathogenesis of Polycystic Kidney. L. Baccarini.—p. 618.

Fat Necrosis of Breast.—Brancati describes fat necrosis of the breast, a disorder consisting in a process of destruction and replacement of the fat tissue—which may be clinically confused with tumors and especially with cancer. He cites the various pathogenic theories, attributing to the influence of a pancreatic secretion or of a lipase contained in the blood changes in the fat due to endocrine disturbances, chiefly of the thyreo-ovarian group or of the reticulo-endothelial system; to this may be added the traumatic factor, which sometimes escapes observation. The author describes the various anatomopathologic stages of the lesion—from the formation of a focus of necrosis associated, when there is a trauma, with hemorrhagic foci, down to the formation of special nodules consisting of fibroblasts, giant cells and epithelioid cells (lipoblasts), which fill up the interior of the fat lobules, gradually dissolving the fat and finally replacing it with fibrous tissue. In the giant cells and in the lipoblasts one can discover, by means of special stains, some drops of fat. The author holds that these elements are derived from the histoid cells of the reticulo-endothelium, with which they are in intimate connection, rather than from an endogenic proliferation of the fat cell. For the differential diagnosis, one must note the respects in which the condition differs from cancer, for which there are few clinical symptoms. The best means is represented by the direct anatomopathologic test with the aid of an exploratory incision. In other diseases, such as tuberculosis of the breast, syphilis, actinomycosis and benign tumors, the opportunities for differentiation are greater. The treatment, provided it is possible to establish a sure diagnosis, should consist in the partial removal of the tumefaction. The author describes three clinical cases that he observed, during the past two years, at the surgical clinic in Rome. By means of macroscopic and microscopic pictures he reproduced the various aspects of the lesion.

Pediatria, Naples

38: 809-864 (Aug. 1) 1930

Statistical and Clinical Observations on Prematurely Born Infants in Their First Days of Life. G. Milio.—p. 809.
*Modifications of Opsonic Index in Children Convalescent from Measles and Chickenpox. G. A. Piana.—p. 828.

Opsonic Index in Children Convalescent from Measles and Chickenpox.—Piana has made a special study of the opsonic index in children convalescent from measles and chickenpox. He concludes: The opsonic index in children convalescent from measles is diminished toward the typhoid bacillus, normal with reference to *Brucella melitensis* and increased with respect to the streptococcus. The high index toward the streptococcus, in contrast with that toward other micro-organisms, may be associated with unknown causes or etiologic affinities. The opsonic index in children convalescent from chickenpox is notably increased toward all three micro-organisms.

38: 865-920 (Aug. 15) 1930

*Blood Changes in Chickenpox. N. Carrara.—p. 865.
Congenital Cardiopathies, with Especial Reference to Their Importance in the Field of Scientific Medicine. V. Uguccioni.—p. 881.
Observations on a Number of Cutaneous Tuberculin Tests. P. Gorini.—p. 899.

Blood Changes in Chickenpox.—From his hematologic study of fourteen cases of chickenpox, carried out during the various periods of the disease, Carrara points out the following: in the period of incubation, relative lymphocytosis with neutropenia; in the exanthematic period, leukopenia in 50 per

cent of the cases and constant relative lymphocytosis with neutropenia; absence of eosinophils in eight cases and increase of mononuclears in ten cases; almost constant observation of plasma cells (from 1 to 4 per cent); occasional observation of myelocytes and neutrophil metamyelocytes; in convalescence, reactive leukocytosis, which, often however, begins before the disappearance of the exanthem. During the various periods, the erythrocytes appear to be slightly or not at all modified. The author thinks that these blood manifestations may constitute a valuable aid in the differential diagnosis, especially in clinically doubtful cases.

Policlinico, Rome

37: 1165-1200 (Aug. 11) 1930. Practical Section

Surgical Treatment of Acute Hematogenic Osteomyelitis. A. Avoni.—p. 1165.
Non-surgical Treatment for Ingrowing Nails. G. Nisi.—p. 1168.
*Infantile Hemiplegia Due to Malaria. B. de Luca.—p. 1171.

Infantile Hemiplegia Due to Malaria.—De Luca describes two cases of infantile hemiplegia due to malaria which resulted in complete recovery. In one case there was subtertian fever, which with relative frequency gives rise to nervous syndromes, while in the second case the small type of plasmodium of tertian fever was encountered. The author thinks this is the first case reported in the literature.

37: 1201-1236 (Aug. 18) 1930. Practical Section

Galactotherapy in Ophthalmology. P. Porru.—p. 1201.
*Periarterial Sympathectomy in Treatment of Pains Due to Cerebral Hemiplegia. G. Bombi.—p. 1204.

Periarterial Sympathectomy for Pain Due to Cerebral Hemiplegia.—Bombi reports having secured good results from periarterial sympathectomy in two cases of cerebral hemiplegia associated with persistent pains on the hemiplegic side. He calls attention to the contrast between the facts observed and the theoretical conceptions universally accepted, in regard to the central origin of these pain syndromes, and emphasizes the practical importance of the subject.

Riforma Medica, Naples

46: 1225-1264 (Aug. 4) 1930

Primary Interlobar Empyema. L. de Beco.—p. 1227.
*Infective Hepatitis and Icterus Due to Spirochetes. L. Villa.—p. 1234.
Inflammatory Nature of Spinal Fluid in Certain Forms of Nonfamilial Friedreich's Disease. G. Vercelli.—p. 1238.

Infective Hepatitis and Icterus Due to Spirochetes.—In addition to three observations on infective icterus due to spirochetes, with a fatal course, previously published, Villa reports here four further cases, observed likewise in the province of Pavia, having clinical symptoms somewhat similar to the symptoms of the preceding cases. The bacteriologic search for the pathogenic spirochetes was not always positive; nevertheless the clinical picture points in the majority of cases to infective icterus. All forms of treatment proved useless in the cases with a hyperacute course; but in acute and subacute cases the author found arsphenamine in small but frequent doses useful.

Rivista di Clinica Pediatrica, Florence

28: 553-648 (July) 1930. Partial Index

*Absorption of Calcium and Phosphorus in Experimental Rickets. F. Peola and G. Guassardo.—p. 583.

Absorption of Calcium and Phosphorus in Experimental Rickets.—Peola and Guassardo performed animal experiments in which they used a loop of intestine, isolated by means of a double Vella fistula, to determine the absorption of calcium and phosphorus and its variations during the development and evolution of rickets. They also determined in the same animals the quantitative variations in the calcium and phosphorus contents of the blood serum after intestinal absorption under both conditions (normal and in rickets). The experiments were made first when the animals were in normal condition and then during the development and evolution of experimental rickets produced by Mellanby's diet. The moment when the phosphorus began to diminish was considered as the first symptom of rickets. This symptom was promptly followed by the appearance of clinical symptoms of rickets as proved by roentgen examination. The authors give the technic of their experiments and present the results in tabular form. It is manifest that the absorption of calcium does not undergo any variation during the entire period of rickets. The authors say that this fact confirms the opinion that calcemia is normal in rickets, except when the latter is complicated with tetany. The absorption of phosphorus, on the contrary, undergoes marked modifications, especially in the advanced period of rickets. Under normal conditions the absorption of calcium is from 50 to 60 per cent of the amount taken in, and that of phosphorus from 70 to 80 per cent. After experimental rickets has been provoked, the absorption of calcium remains normal while that of phosphorus falls to 60 per cent. However, the disturbances in the absorption of phosphorus appear retarded in rickets. Hence they should be considered from the point of view of the pathogenesis of rickets, as secondary manifestations.

Prensa Médica Argentina, Buenos Aires

17: 197-264 (July 10) 1930

Present Status of Problems of Infection. M. R. Castex.—p. 197.
Supracondylar Fracture of Femur with Traumatic Detachment of Inferior Ephiphysis of Tibia: Two Cases. N. Tagliavacche and V. di Franco.—p. 249.
*Helminthologic Study of One Hundred Appendixes Removed Surgically. J. Bacigalupo.—p. 252.
Sulpharsphenamine in Treatment of Erysipelas in Infants: Case. J. B. Germano.—p. 256.

Helminthologic Study of One Hundred Appendixes.—Continuing previous studies that he made on the parasitology of normal appendixes in children, Bacigalupo now presents the results of an helminthologic study of 100 pathologic appendixes which had been removed by surgery from adults. Parasites were found in twenty-five (in twenty-four, *Enterobius vermicularis* and in one, *Trichuris trichiura*). In the case of *T. trichiura*, the parasite existed alone. In the other cases the number of parasites varied from one to seventeen in each appendix. In eighteen appendixes there were only female parasites; in five appendixes there were males and females in association, and in one appendix there was only one male. The author describes the technic he used to isolate the parasites. He reaches the following conclusions: The incidence of appendicular helminthiasis in Argentina in normal appendixes of children less than 13 years is from 27 to 48 per cent, and that of pathologic appendixes removed surgically from adults is about 25 per cent.

17: 437-484 (Aug. 20) 1930

Perivisceritis of Upper Right Portion of Abdomen: Clinical and Roentgenographic Diagnosis. C. B. Udaondo.—p. 437.
*Severe Hepatitis with Abscesses Following Appendicitis. N. Tagliavacche and R. Brouca.—p. 453.
Roentgen Examination of Peptic Ulcer of Jejunum. P. M. Schlanger and E. W. de Schlanger.—p. 457.
*Appendicular Spirochetes. S. Mazza.—p. 464.
Diverticulitis of Sigmoid Flexure. L. Puccio.—p. 468. C'cn.

Severe Hepatitis with Abscesses Following Appendicitis.—Tagliavacche and Brouca describe a case in which after an appendectomy the patient showed all the usual symptoms of severe hepatitis with abscesses. Yet he was cured by a simple treatment consisting of epinephrine, hepatic refrigeration, vaccination, daily enemas, and a diet of cereals, milk and cooked fruit. The authors believe that surgical treatment of hepatitis with multiple metastatic abscesses accompanying appendicitis is usually of value only when the operation is performed simultaneously with the appendectomy and by a surgeon especially skilful in determining the course of action to take in the face of unexpected complications. They also believe that more cures than is commonly admitted are spontaneous rather than the result of surgical intervention. Their policy, therefore, is to employ surgical intervention usually only as an early prophylactic treatment, when the hepatic complications are observed at the time of the appendectomy. Appendicitis likewise results at times in a single abscess of the liver which is much less dangerous and more susceptible to spontaneous cure than are multiple abscesses. This fact the authors consider an additional reason for believing that the hepatic complications with abscesses following appendicitis, still generally believed to be fatal in the majority of cases, are often cured spontaneously if no surgical intervention is practiced.

Appendicular Spirochetes.—Mazza examined the contents of 394 appendixes and in thirty-eight found spirochetes resem-

bling those of the type *Spirochaeta eugyrata*. Most of the patients in whom the infection was observed had shown no previous indications of diarrhea or dysentery, nor had these spirochetes appeared in the feces. Microscopic examination of the thirty-eight appendixes revealed intrafollicular hemorrhages, intense eosinophilia of the submucosa, and in some cases chronic fibrous lesions and mucosal atrophy resulting from the coprostasis. The infection is doubtless due to some outside source, probably drinking water. Because of the lack of marked clinical or anatomicopathologic phenomena, there is no authority to speak of "spirochetal appendicitis" but merely of "appendicular spirochetes." In case the removal of the appendix does not remove all traces of the infection, arsenical treatment may be used. Because of the failure of attempts to cultivate these spirochetes it is impossible to say conclusively that they actually belong to the type eugyrata, although their morphology indicates this relationship.

Semana Médica, Buenos Aires

37: 229-304 (July 24) 1930. Partial Index

Periodic Acetonemic Vomiting and Acidosis: Treatment. J. P. Garrahan. —p. 233.
Ostearthritic Tuberculosis of Knee: Robertson Lavalle's Operation. A. E. Despontin.—p. 248.
Acute Transverse Myelitis in Child. J. M. Macera and J. Pereyra Käfer.—p. 253.
*Biliary Peritonitis Complicating Choledocholithiasis. R. L. Masciottra and N. Ambrosino.—p. 256.
Roentgen Diagnosis of Anencephalia During Pregnancy: Case. A. J. Guiroy.—p. 259.

Biliary Peritonitis Complicating Choledocholithiasis.—Masciottra and Ambrosino state that their fatal case of biliary peritonitis complicating a choledocholithiasis in which operation had not been performed is the first published in the literature. Their patient, aged 40, had the first attack four years before the last one. The next attack appeared two years later. In the present (third) attack the patient presented a grave syndrome with fever, intense jaundice, symptoms denoting obstruction of the common bile duct and insufficiency of the liver, and abundant hemorrhages from the uterus and the nose. Duodenal tubage and lavage of the stomach caused the expulsion of a large amount of black fluid. Medical treatment failed. At necropsy there was found a diffuse biliary peritonitis. The gallbladder and common bile duct were enlarged but not ruptured and they contained stones. One of the stones embedded in the common bile duct had caused its obstruction.

37: 465-544 (Aug. 14) 1930

Diagnosis and Treatment of Pernicious Anemia. D. Speroni.—p. 465.
*Primary Sarcoma of Lung in Child. M. Acuña, P. Winocur and G. P. Orosco.—p. 474.
Dystocia Due to Absence of Lower Uterine Segment as Late Results of Radium Treatment: Case. D. A. Rojas.—p. 481.
Adenocarcinoma of Pylorus with Metastasis to Ovaries and Liver. O. F. Mazzini and D. Brachetto-Brian.—p. 486.
Reconstruction of Urethra in Woman Two Years After Cystotomy: Case. A. J. Pavlovsky.—p. 494.
*Acute Orchitis After Vaccination in Child. G. A. Schiavone.—p. 515.
Treatment of Varicose Veins by Subcutaneous Injections of Acetylcholine: Eighteen Cases. I. Dainow.—p. 524.
Complete Fracture of Horizontal Ramus of Inferior Maxilla. V. Pardo de Tavera.—p. 539.

Primary Sarcoma of Lung in Child.—Acuña et al. report the case of a child, aged 8, observed during life, in which at necropsy a primary sarcoma of the left lung with invasion of the pulmonary vein, displacement of the heart, and metastasis to the liver, were found. The authors review the literature and present statistics on primary and secondary neoplasms of the lung observed during a period of ten years. Neoplasms of the lung are rare in persons aged less than 20. Sarcoma of the lung in children has an insidious onset with anorexia, cough and fever, without modifications in the nutrition of the patient. Later on the cough becomes worse and dyspnea and cyanosis appear. The physical signs, which at first are similar to those of pleural effusion, soon become more marked. Displacement of the adjoining organs takes place at the same time that thoracic deformity occurs. Roentgen examination shows a dark shadow in the lung. When roentgen pictures are taken at intervals of a few days, the rapid progress of the tumor, invading the normal fields, is manifested. Pleural puncture yields bright red blood. The last mentioned sign is characteristic of malignant neoplasm of the lung and in the authors' case it was present. Some of the symptoms found in sarcoma of the lung in adults (such as the expectoration of prune juice sputum, pain in the thorax and the appearance of neoplastic cells in the sputum) are not observed in sarcoma in children.

Orchitis After Vaccination in Child.—Schiavone says that orchitis is a frequent complication of certain infections. A type of orchitis similar to orchitis variolosa has been observed after vaccination. There are opinions (though conflicting) maintaining a relation between the epidermotropic virus of smallpox and of vaccination, on which basis it could be accepted that orchitis and orchiepididymitis might be complications of vaccination just as they are complications of smallpox. The author reports a case of postvaccinal orchitis (probably associated with epididymitis). The presence of an infection or the association of any other disease was excluded in his case. Orchitis developed six days after vaccination as a vaccinal complication. The author considers that there is a relationship between the development of orchitis in his case and the presence of complications of a similar nature in smallpox; that is, a relationship between postvaccinal orchitis and orchitis variolosa.

Archiv für klinische Chirurgie, Berlin

161: 1-334 (Aug. 26) 1930

Studies on Transplantation of Tumors of Man into Mice. H. Hellner. —p. 1.
Roentgenologic Study of Callus and Bone Growth in Healed Fractures with Deformity. R. Hinz.—p. 49.
*Air Embolism, Especially in Urologic System. W. Rettig.—p. 72.
*Treatment of Suppurations of Fingers and Hand. S. Sokolov.—p. 89.
*Healing of Wounds Under Adhesive Plaster Bandage. E. Dabasi.—p. 117.
Colitis: Differential Diagnosis. G. Garry and A. Druckmann.—p. 128.
Mechanics and Tone in Abdominal Cavity. E. Pflomm.—p. 139.
Regeneration of Elastic Cartilage. M. N. Zajewloschin and J. C. Koch. —p. 157.
Chemical Reactions Taking Place in Ether, and Anesthesia. H. Offergeld.—p. 172.
Traumatic Effusions into Joints. E. Risak and W. Winkler.—p. 190.
Myositis Ossificans of Elbow Joint. G. Wolfsohn.—p. 215.
*Calcium Content of Blood in Chronic Rheumatic Arthritis. M. Bastos and L. Mazo.—p. 222.
Recurrence of Gastric Ulcer After Resection of Stomach. F. Jaeger. —p. 233.
*End-Results of Palliative Operations for Perforated Gastric and Duodenal Ulcers. K. Neller.—p. 244.
*Experiences with Nitrous Oxide-Oxygen Anesthesia. D. von Klimkó. —p. 259.
*Effect of Acid and Alkaline Foods on Regeneration of Bone. Mondry and H. Boeminghaus.—p. 273.
Indications for Operation in Osteochondritis Dissecans. H. von Staa. —p. 281.
*Treatment of Postoperative Retention of Urine. E. Rotthaus.—p. 309.
Should Lane's Method of Treatment of Fractures by Means of Bone Plates be Discarded? M. Kirschner.—p. 319.

Air Embolism.—Rettig is convinced that the dread of air embolism is justified by the deaths that have resulted from filling the urinary bladder, the pelvis, the bed of the kidney, the chest and the abdomen with air. The use of oxygen has not lessened this danger. The author feels that the incidence of air embolism has been overstated, but, nevertheless, the fact that it does occur should never be forgotten. Dangerous diagnostic procedures should therefore be employed only when the indications are incontrovertible—when all other aids have failed, and the condition of the patient absolutely calls for making the diagnosis. The treatment is entirely prophylactic: when it is evident that air embolism has occurred, the injection of air should be discontinued, the patient should lie down with the hips slightly elevated, oxygen should be administered and the heart action should be supported, if necessary, with resort to the injection of epinephrine and even heart massage and artificial respiration with the pulmotor. Surgical intervention is useless. Rettig calls attention to the dangers of making an intracardiac injection; namely, the possibility of injuring one of the coronary arteries or its branches.

Treatment of Suppurations of Hand and Fingers.—Sokolov advises early operation in all these cases, under light general anesthesia in an absolutely bloodless field. The tourniquet should be applied to the upper arm. He never uses sharp hooks, nor does he resort to exarticulation. In cases of suppurative tenovaginitis, early intervention and subsequent immobilization (rest) of the extremity are of vital importance to complete recovery of function. Bandages and dressings must

be applied with extreme care so as not to cause pain, and active motion is essential to the prevention of adhesions.

Wound Healing Under Adhesive Plaster Bandage.—Experience has convinced Dabasi that both the number and the virulence of bacteria are lessened under an adhesive plaster bandage. In the course of the treatment the underlying tissues reach a state of alkalosis in most cases. In 100 cases treated in this wise there was not a single complication nor a spread of the infection. Wound healing progressed very favorably. In fact, the author stresses the importance of moisture in favoring wound healing and points out that even pus is of value in that respect, provided it does not contain harmful elements, especially bacteria. Here the adhesive plaster bandage is of value because of its effect on the bacteria and without hindering wound secretion, which is needed to promote healing. Furthermore, it is cheap, is applied easily, is taken off easily, and never causes the patient any pain. It should be changed every ten or twelve days, at the latest; he prefers to do this every four or five days. The duration of the treatment varied from fourteen to thirty days, instead of months or even years, and the scar is less disfiguring than with the treatment usually employed. The method should not be used in cases of progressing suppurations; that is, when there is an evident tendency to spread, which calls for more radical measures.

Calcium Content of Blood in Chronic Rheumatic Arthritis.—A personal study of thirty normal, healthy students with reference to the calcium content of the blood has convinced Bastos and Mazo that the normal value is much more stable than has hitherto been supposed to be the case. This value lies between 10 and 11 mg. per hundred cubic centimeters; that is, the fluctuation is not greater than 1 mg. per hundred cubic centimeters. An examination of thirty-two cases of rheumatic disease showed lower and higher values and a greater fluctuation in the calcium content. The figures were: low, 9.99 mg.; high, 13.76 mg.; fluctuation, 3.77 mg. per hundred cubic centimeters. The low figure was obtained in only one case; in thirteen cases average values were obtained, and in eighteen cases there was a distinct hypercalcemia. The authors are of the opinion that these higher calcium values are not the result of storage of calcium in the blood but are indicative of changes in the bones which are a part of the clinical picture in some of these cases. In other words, there is a mobilization of organic lime in exostoses, bone bridges and ossifications. Other, uninvolved parts of bone are correspondingly decalcified. In cases of arthritis without bone lesions, the calcium values are normal. In eight cases of tuberculous osteoarthritis the calcium values were well within normal limits; in two cases of bone cysts, they were markedly high (13 mg.); hence, it is evident that increase in calcium is not the cause but the result of these disorders. One bone area demands calcium for ossification; therefore it is withdrawn from some other area to supply this demand.

End-Results of Operations for Perforated Peptic Ulcers.—Neller has had opportunity to reexamine twenty-one patients on whom he had operated for a perforated peptic ulcer. He has also reviewed the literature for similar cases reported by other operators. The total number of cases reviewed was 579. Of these 374 patients, 64.4 per cent, were free from any discomfort. As to the effect of the type of operation on the result: 63 per cent of those on whom a gastro-enterostomy was performed, in addition to closing the perforation by suture, made no complaint, and 61 per cent of those without gastro-enterostomy were symptom-free. Neller feels that resection of the ulcer is the best procedure so far as permanent results are concerned, but because of the severity of this operation it is indicated only rarely—when it can be performed easily, when the condition of the patient is good, and if performed soon after the perforation has taken place. As a rule, or rather as a routine treatment, closing the perforation and performing a posterior gastro-enterostomy, gives the best results.

Results of Nitrous Oxide-Oxygen Anesthesia.—Von Klimkó prefers this anesthesia to any other. He has employed it in more than 300 cases, including laparotomies, done for various reasons, even a resection of the stomach, amputation of an extremity, herniotomy and cholecystectomy. He says that it has many advantages over general anesthesia: it is given easily; the patient does not mind taking it; he wakens quickly afterward and has fewer postanesthetic discomforts; it has no bad effects on the air passages or viscera in general. Postanesthetic bronchitis and pneumonia are exceedingly uncommon. However, the anesthesia is not sufficiently deep for laparotomies and it is more expensive than other means of anesthesia.

Effect of Reaction of Diet on Bone Regeneration.—Young animals from the same litter were used by Mondry and Boeminghaus to study the effect of distinctly acid and alkaline foods on the course of bone regeneration and growth. Note of growth was made by means of roentgenograms taken at eight day intervals. There was not much difference in result, but sufficient to make it evident that an acid diet does affect bone growth favorably, and that it may be well to bear this in mind in the treatment of fracture cases. Animals fed oats showed far better bone growth than animals fed greens. A clinical application of these observations can be made.

Treatment of Postoperative Retention of Urine.—In the opinion of Rotthaus, the intravenous injection of 0.01 Gm. of pilocarpine and 0.3 mg. of atropine is the best treatment for this condition. It is harmless, simple and effective. It is preferable to using the catheter.

Beiträge zur klinischen Chirurgie, Berlin

150: 1-170 (July 26) 1930

*Symptoms of Acute Deep-Seated Ulcer of Duodenum. V. Hoffmann.—p. 7.
*Gummous Mastitis. H. Akaiwa.—p. 18.
*Symptoms and Treatment of Cancer of Breast. W. Himmelmann and W. Lehmann.—p. 31.
*Excision of Gastric Ulcer. V. Hoffmann.—p. 59.
Dangers of Operations on Bile Passages: Their Causes and Treatment, with Especial Reference to Postoperative Affections of Liver. F. Bernhard.—p. 82.
Results of Operation for Osteochondritis Dissecans. K. Radicke.—p. 121.
*Primary Hemangioma of Spleen of Unusual Size. F. Schwarz.—p. 130.
Symptomatology of Osteopsathyrosis Combined with Blue Sclera and Impaired Hearing. K. Königsfest.—p. 135.
Some Electric and Thermic Processes in Diathermocoagulation. O. Schürch and M. J. Purtschert.—p. 161.

Symptoms of Duodenal Ulcer.—Hoffmann remarks that acute ulcer of the stomach and duodenum often manifests itself with a variable symptomatology. Deep seated ulcers initiate the clinical picture with most severe pain in the upper part of the abdomen—such as occurs previous to the perforation of an ulcer—but disappears entirely in the course of a few hours. Less deep seated ulcers give indefinite symptoms; often only pressure pain on deep palpation over the site of the ulcer. In other words, the acute picture is absent. In the diagnosis of an acute duodenal ulcer, Hoffmann relies on the presence of fever and glycosuria, both of short duration, and motor disturbances in the stomach. He regards these symptoms as being almost pathognomonic.

Syphilis of Mammary Gland.—Akaiwa says that the female breast may be the seat of any of the clinical manifestations of syphilis. Gummous mastitis occurs either as a circumscribed or as a diffuse lesion. In his case, the gumma was detected eleven years after the occurrence of the primary infection. The macroscopic and microscopic observations are characteristic, although often a differential diagnosis is rendered difficult by resemblance of the tumor to other types of tumor. The author extirpated the tumor in his case and followed this removal with active antisyphilitic treatment. A complete cure and restitution of the patient's health was effected.

Treatment of Cancer of Breast.—Himmelmann and Lehmann report 271 cases of breast cancer (234 new cases; 37 seen because of a recurrence or a metastasis); 11.9 per cent of these cases were combined with struma. Some of the patients were subjected to radical operation alone; others to radical operation, plus postoperative irradiation with the roentgen ray. The results of the former method were better than those of the latter. The prognosis of tumors situated in the sternal half of the breast was worse than in the case of tumors situated laterally. The authors do not favor postoperative irradiation.

Excision of Gastric Ulcer.—An experience with ten cases leads Hoffmann to conclude that excision of a gastric ulcer is the best method of treatment. It is preferable to gastro-enterostomy.

Primary Hemangioma of Spleen. — The spleen in Schwarz's case weighed 3,500 Gm. It consisted almost entirely of a tumor which measured 24 by 18 by 10.5 cm. It was a typical hemangioma. The patient, a woman, aged 35, made a complete and rapid recovery, leaving the hospital three weeks after the operation.

Deutsche Zeitschrift für Chirurgie, Leipzig

226: 309-430 (Aug.) 1930

*Etiology of Appendicitis. Heile.—p. 309.
Postoperative Alkalosis: The Acid-Base Equilibrium in Ileus. J. Baumann.—p. 335.
*Pathogenesis and Treatment of Gastro-Intestinal Form of Lymphogranulomatosis. L. Sussig.—p. 344.
*Clinical and Experimental Study of Rapid Evacuation of Bile from Liver by Means of Drainage. F. Mandl and E. Rissak.—p. 358.
*Blood Sugar Curves Caused by Peroral Administration of Dextrose in Cases of Inflammation of Gallbladder and Bile Passages. H. Eitel.—p. 368.
Reopening the Knee Joint After Operations for Injury of Semilunar Cartilages. F. Mandl.—p. 376.
Diagnosis of Localized Osteitis Fibrosa. F. Mandl.—p. 391.
Heredity of Multiple Cartilaginous Exostoses. W. Birkenfeld.—p. 397.
Pseudarthrosis Resulting from Fracture of Internal Malleolus. H. Lützeler.—p. 404.
Flatfoot Caused by Congenital Deformity of Talus and Calcaneus. E. Siegmund.—p. 412.
Arachnodactylia. E. Schrader.—p. 423.
Constructing a Thumb from First Metacarpal in a Case of Absence of All Fingers. R. Kraft.—p. 426.

Etiology of Appendicitis.—Heile is of the opinion that during digestion an increased amount of fluid finds its way into the lumen of the appendix, either directly from the intestinal contents or as the result of a reflex action of the sympatheticus. This fluid becomes strongly alkaline and has a strong tryptic action. If for any reason this fluid cannot make its way back into the cecum, it exhibits an irritating effect on the mucosa of the appendix wall. In the course of time the mucous glands in the wall of the appendix become necrotic. This effect is hastened by increase in the enzyme content of the contained fluid; its mixture with the normal bacterial content of the appendix; adhesions, torsion of the appendix; development of fecal stones, and increase in pressure within the lumen. Prophylactic treatment consists in avoiding overfeeding or overeating, especially of albuminous foods, and in good evacuation of the intestines.

Treatment of Gastro-Intestinal Lymphogranulomatosis.—Sussig reports a case of gastric and two of intestinal lymphogranulomatosis in which the pathologic changes were limited to a part of the gastro-intestinal tract and the regional lymph nodes. A tuberculous basis for this condition was absolutely ruled out; in one case a diphtheroid bacillus gave rise to many important questions. Therapeutically, the author is of the opinion that radical extirpation of the affected tissues is indicated with medical and roentgen treatment after the operation.

Draining the Liver and Bile Passages.—Mandl and Rissak have determined experimentally that it is not possible to drain the deeper lying bile passages in the liver by any type of drain; in fact, such a drain hindered the outflow of bile. Therefore, the operation of deep hepatostomy is indicated but seldom, only in most urgent cases. On the other hand, superficial drainage should always be employed in any operation on the bile passages when these show evidence of being dilated. Some clinical experiences cited support these experimental observations.

Blood Sugar Curves in Inflammations of Gallbladder.—Eitel has found that in cases of inflammation of the gallbladder the peroral administration of dextrose is always followed by a definite increase in the blood sugar; in fact, three distinct curves were recorded, each curve being typical of a single pathologic condition. Disturbed liver function is regarded as being the primary cause for these observations. It is not possible to detect disturbances of pancreatic function. With a return of hepatic function, dextrose is eliminated from the blood in two or three hours. The author feels that, in cases of chronic inflammations of the gallbladder which cannot be detected clinically, the sugar tolerance test may prove to have diagnostic value.

Wiener klinische Wochenschrift, Vienna

43: 1077-1104 (Aug. 28) 1930

*Ustilaginism, an Alimentary Disturbance in Children. E. Mayerhofer.—p. 1077.
Treatment of Pulmonary Suppurations by Means of Operative Pneumothorax with Drainage of Pleural Cavity. W. Goldschmidt.—p. 1079.
Therapeutic Experiments with Gonococcus Vaccine. O. Rieger.—p. 1082.
Is the So-Called False Udder-Pox of Cattle Transmittable to Human Beings? P. Esau.—p. 1083.
Clinical Value of Determination of Diastolic Pressure. S. Sterling-Okuniewski.—p. 1084.
Normal Extension of Krönig's Field. A. Grgurina.—p. 1087.
Measures to Facilitate Tuberculin Injections. A. Schimak.—p. 1088.
Surgical Treatment of Tumors of Colon and of Rectum. J. Doberer.—p. 1089.
Methods for Demonstration of Albumoses in Urine. F. Erben.—p. 1091.
Diabetes Mellitus: Various Forms and Treatment. W. Falta.—p. 1092.
Hemorrhages During Period of After-Birth. H. Heidler.—p. 1092.

Ustilaginism, an Alimentary Disturbance in Children.—Mayerhofer observed two children with the typical symptoms of ergotism. In one case he noted convulsions and gangrene, in the other convulsions with delirium. The etiology of these conditions was at first not clear because the flour and bread used in the household did not contain ergot of rye. Moreover, both children had been fed almost exclusively with products of maize. Tests of the maize flour revealed a high content of *Ustilago maydis*, the smut of maize. The fact that *Ustilago maydis* contains substances that have the same pharmacologic action as ergot of rye indicated that the disease of the two children was caused by *Ustilago maydis*. The author designates the disorder as ustilaginism maydis. He gives a detailed description of the symptomatology and further discusses the diagnosis and the differential diagnosis. He says that most of the symptoms, with the exception of the cardiac disorders, namely, hypertension and tachycardia, disappear, after the food containing the *Ustilago maydis* is eliminated from the diet. However, the patients usually retain a hypersusceptibility to this substance. If food containing *Ustilago maydis* is not avoided, the disturbance becomes more severe, necroses develop, and the outcome might be fatal. Exposure to the hot rays of the sun may cause acute exacerbation of the ustilaginism. The administration of papaverine relieves the prickling sensation and decreases the high blood pressure. In order to prevent ustilaginism the author recommends that, in countries where maize is eaten in large quantities, the authorities should see to it that the maize used for seeding is free from *Ustilago maydis*.

Zeitschrift für Urologie, Leipzig

24: 641-720, 1930

Diverticulum of Ureter. R. Chwalla.—p. 641.
*Urethra: Suppository Anesthesia. A. Fryszmann.—p. 646.
Gonococcal Antigen Determinations in Urine: Diagnostic Value. E. M. Sienkiewicz.—p. 647.
Irrigation of Bladder: Apparatus for Providing Stream of Water of Constant Temperature. Pflaumer.—p. 659.
Ureteral Stenosis: Rare Causes. Warner.—p. 660.
*Malignant Tumors of Bladder: Treatment. J. J. Stutzin.—p. 662.
*Chemocoagulation of Bladder Tumors. E. Joseph.—p. 664.
Electrocoagulation of Small Vesicovaginal Fistulas. J. Bitschai.—p. 669.
*Periurethral Urinary Phlegmon. J. J. Stutzin.—p. 672.
Conservative Operation in Large Kidney Stone. Warner.—p. 674.
Passage of Renal Calculi Through Lumbar Fistula. W. Israel.—p. 675.
Ureterovaginal Fistula Caused by Suture of Tear of Cervix. W. Israel.—p. 678.
Angioma of Anterior Urethra. W. Israel.—p. 679.

Urethra: Suppository Anesthesia.—When a quantity of cocaine solution sufficient to anesthetize the urethra is introduced into it, tears of the mucosa are produced and the cocaine enters the systemic circulation and causes symptoms of intoxication. In at least one case reported in the literature the cocaine intoxication produced in this manner caused the death of the patient. Fryszmann therefore anesthetizes the urethra by means of oil of theobroma suppositories 6 cm. long and 4 mm. in diameter containing 0.3 Gm. of solid procaine hydrochloride, which is equivalent to 15 cc. of a 2 per cent procaine hydrochloride solution. Just before it is used, the suppository is placed for a moment in warm water (or a warm solution of mercuric oxycyanide); it is then introduced at once into the urethra and massaged in the direction of the posterior urethra. In about twenty minutes the anesthesia reaches its maximum depth and the introduction of instruments is completely painless. This method of anesthesia, which the author has used in a large

number of cases, has the following advantages: 1. The mucosa of the urethra is not stretched and torn and procaine hydrochloride solution does not enter the blood stream. 2. With it one avoids the annoying and occasionally harmful compression of the glans penis while waiting for the solution of procaine hydrochloride to act. 3. The melted oil of theobroma facilities the introduction of instruments.

Treatment of Malignant Tumors of Bladder.—Stutzin believes that the thermocautery deserves greater use in the treatment of malignant tumors of the bladder. He reports the case of a man, aged 54, who had had hematuria for two months. Illumination of the bladder was almost impossible because of the rapid collection of blood in it. A pale blue fluid was therefore injected into the bladder and it was then possible to distinguish a broad-based, villous tumor that occupied the entire space between the orifices of the ureters and the neck of the bladder. The profuse arterial hemorrhage continued despite the use of various chemotherapeutic substances and an extensive coagulation of the tumor. The condition of the patient became grave. A suprapubic cystotomy was therefore performed; the tumor was destroyed completely with the thermocautery and its base was coagulated. The hemorrhage stopped immediately. The condition of the patient improved markedly and he gained in weight. On the basis of the results he obtained in this case the author recommends for the treatment of malignant tumors of the bladder a combination of cauterization, which acts rapidly but superficially, and electrocoagulation, which acts more slowly but more deeply.

Chemocoagulation of Bladder Tumors.—According to Joseph the great advantage of coagulation of bladder tumors by means of concentrated trichloracetic acid is that it acts much more rapidly than thermocoagulation. Another advantage of this form of treatment is that parts of the tumor that are not coagulated frequently undergo spontaneous retrogression; this does not occur following thermocoagulation. For chemocoagulation only a one-way ureteral cystoscope is required. The crystals of trichloracetic acid are heated without the addition of water and dissolve in their own water of crystallization. In this manner a clear liquid is produced that recrystallizes in the cold; to prevent this, a drop of glycerin is added for each cubic centimeter of trichloracetic acid. The ureteral catheter through which the acid is applied to the surface of the tumor is shortened considerably so that the acid does not crystallize out and occlude it. The tip of the catheter is cut off obliquely in such a manner that the opening points anteriorly. Since the acid in its concentrated form is much heavier than the bladder contents, the catheter is held closely over the tumor. At first the water in the catheter and bubbles of air escape and then drops of trichloracetic acid appear, drop down on the tumor, and in a few seconds (much more rapidly than with thermocoagulation) cause a large part of the tumor to become necrotic. Even hemorrhages are frequently arrested by application of the acid. Emphasis is laid on the fact that not more than one cubic centimeter of the acid should be used because of the danger of a too extensive necrosis of the tumor and of an acid intoxication of the patient.

Periurethral Urinary Phlegmon Following Operation.—Stutzin reports a case of periurethral urinary phlegmon in a man who had been treated for stricture. Several incisions were made in the greatly swollen genitalia and because of an impermeable stricture a cystostomy was performed. The condition of the patient improved but three days later he complained of pain in the neck. After a few days there developed an enormous swelling involving the right cheek, the right half of the neck, and the premaxillary and submaxillary spaces. Because of marked edema of the glottis with dysphagia and dyspnea, it was necessary to operate at once to save the life of the patient. The subfascial spaces of the neck were opened by means of a long incision and were found to contain a cloudy fluid but no pus. The operation was followed almost immediately by a disappearance of the edema of the glottis, but two weeks elapsed before the tissue included in the phlegmon became necrotic and was evacuated. In a review of the literature the author was unable to find the report of another instance of the concurrence of a urinary and a cervical phlegmon.

Zentralblatt für Chirurgie, Leipzig

57: 2225-2288 (Sept. 6) 1930

*Report of Successful Results in Cases of Unilateral Pulmonary Tuberculosis of Attempt to Enhance Value of Phrenicus Exeresis with Resection of Scalenus Muscles. H. Els.—p. 2228.
New Bone Holding Forceps Used in Surgical Treatment of Fractures of Shafts of Bones. P. Neuhöfer.—p. 2233.
Postoperative Lung Complications. F. Mandl.—p. 2236.
*Successful Operation in Case of Hirschsprung's Disease. E. Ege.—p. 2238.
Benign Tumors of Gallbladder. A. Pytel.—p. 2240.

Phrenicus Exeresis with Resection of Scalenus Muscles.—Els is convinced that a combination of these two procedures is vastly superior in therapeutic effect to exeresis alone, if the tuberculosis is limited to the upper portions of one lung, when pneumothorax is not indicated or not possible because of adhesions and it is desired to effect a shrinking of the lung; when complete collapse of the lung after pneumothorax is prevented by adhesions in the upper zone, thus making it impossible for the walls of a cavity in that part of the lung to come in contact; in certain tuberculous processes which do not exhibit any collapse tendency, and when thoracoplasty is performed as a further means to ensure complete rest of the affected lung.

Successful Operation in Case of Megacolon.—A woman, aged 22, ever since birth had suffered from severe constipation. Sometimes she would not have a bowel movement for three weeks. Finally, at about the age of 17 she began to suffer from much abdominal distress; the abdomen increased greatly in size; she complained of severe colic, vomited, became dyspneic, and when she did not have a bowel movement for six weeks, Ege was consulted. Roentgen examination revealed that the entire large bowel, especially the sigmoid, was enormously dilated. It filled the pelvis. In size, the sigmoid resembled an eight months' gravid uterus. The sigmoid and one half of the descending colon was removed; end-to-end anastomosis was performed. The resected part of the bowel was 35 cm. long and 11 cm. in diameter. The patient made a good recovery. She is entirely well and is free from any discomfort. The author emphasizes that while this girl should have been operated on in her early youth, the result is sufficient to warrant performing the operation even later in life with every hope of success.

Kazansky Meditsinsky Jurnal, Kazan

26: 623-764 (July) 1930

Extinction of Adult Tatar Population. F. G. Muhamedyanov.—p. 649.
Relation Between Existence of Natural Antibodies and Capacity of Organism to Form of Artificial Ones. S. M. Enaleev.—p. 661.
Pathogenesis, Clinical Aspect and Therapy of Arthritis of Endocrine Origin. A. G. Teregulov.—p. 668.
Study of Renal Function in Certain Groups of Workers. T. T. Kostukov.—p. 675.
Surgical Treatment of Echinococcus Cyst of Abdominal Viscera. T. F. Haritonov.—p. 685.
*Effect of Lead on Isolated Uterus. M. D. Devlet-Kildeeva and B. A. Raikhstein.—p. 690.
Partial Ovariectomy in Metrorrhagia. A. Alimbek.—p. 694.
Case of Teratoma in Sacrococcygeal Region in Fetus. G. M. Sharafutdinov.—p. 698.
*Alkalinity of Blood in Eczema. B. S. Bikkenin and N. N. Yasnitsky.—p. 703.
Electrolytic Treatment of Chancroid. T. A. Kugushev.—p. 708.
Lichen Ruber: Cases. T. A. Kugushev and M. B. Potashnick.—p. 711.
Living Conditions of Tatar and Bashkir Children in Bash Republic. F. H. Bacyir.—p. 717.
Incidence of Venereal Diseases Among Population of Tartar Socialist Soviet Republic. B. S. Bikkenin.—p. 720.

Effect of Lead on Isolated Uterus.—Devlet-Kildeeva and Raikhstein noted the frequent occurrence of sterility, abortion, premature labor and various catamenial disturbances among women working in the lead industries. To study the effect of lead on the uterine muscle, they excised, under chloroform anesthesia, a part of the uterine cornu in cats and placed it in Ringer's solution or Locke's solution kept at 38 C. and through which a constant stream of oxygen was being passed. One end of the uterine specimen was fixed to the glass container; the other end was attached to a needle, by means of which the muscular contractions were registered on the blackened paper of a revolving drum. After the normal type of the muscular contractions had been ascertained, lead acetate was gradually added to the solution. The uterine contractions changed with

the concentration of the lead acetate. In the first group of experiments, with less than 1:70,000 of lead acetate in the solution, hypotonia of the uterus and weakening and slowing of the muscular contractions were recorded; in the second group, with the increase in the concentration of the lead acetate in the solution up to 1:7,000, the muscular contractions increased in strength and frequency, and the uterus became hypertonic. In both groups the uterine reaction was of short duration, and the uterine contractions became normal in from ten to fifteen minutes. But in the third group, with the increase in the concentration of the lead acetate up to 1:200, the uterus reacted by a complete tetanus, and the muscular contractions could not be made to reappear even after all traces of the lead acetate were washed out. The reaction of the isolated uterus was constant and of the same type in the nulliparous, multiparous and pregnant cats. The introduction of the lead acetate solution into the blood stream of the cats also produced a hypertonic condition of the uterus.

Alkalinity of Blood in Eczema.—Bikkenin and Yasnitsky studied the p_H of the urine and of all the blood in fifty-six patients with eczema (twenty-seven acute cases and twenty-nine chronic cases). At the preliminary examination of the sympathetic nervous system, vagotonia was observed in fifteen patients, sympathicotonia in three patients, mixed form in seventeen patients and normal sympathetic nervous system in twenty-one patients. The determination of the p_H was made by the calorimetric method of Michaelis with a morning specimen of the blood and urine. No deviation from the normal was found in the urine, but the p_H of the blood was found to be from 0.1 to 0.5 above the average, with the maximum increase in the patients with vagotonia.

Finska Läkaresällskapets Handlingar, Helsingfors

72: 607-690 (Aug.) 1930

*Head's Zones as Aids in Diagnosis. L. Peterson.—p. 607.
*Frequency of Dementia Paralytica in Helsingfors from 1904 to 1928. G. E. A. Rothström.—p. 633.

Head's Zones as Aids in Diagnosis.—Peterson says that the zones of hyperalgesia belong to the easily perceptible symptoms that can be read directly from the patient and may be of valuable assistance in diagnosis, particularly to the beginner.

Frequency of Dementia Paralytica in Helsingfors.—Rothström says that comparison of the number of cases of dementia paralytica in men from 1919 to 1923 and from 1924 to 1928 shows an increase of about 100 per cent. The relation between the number of men and women with dementia paralytica was 3.7 to 1 in the first period and 5.8 to 1 in the second. He did not find evidence for the assumption that the nature and intensity of an antecedent antisyphilitic treatment affects the duration of the latent period or causes a shifting in either positive or negative direction. Thirty-two per cent of the cases now set in after the age of 46.

Hospitalstidende, Copenhagen

73: 761-772 (July 17) 1930

Studies on Jaundice. T. Geill.—p. 761. C'cn.
*Gastric Ulcer: Two Cases. C. Kirkegaard.—p. 767.

Gastric Ulcer.—Kirkegaard's cases illustrate the difficulty in differential diagnosis between ulcer and cancer when the changes in the wall of the stomach are so extensive as to point to the diagnosis of inoperable cancer on laparotomy. Niche formation, particularly with large niches, is held as an indication for operative treatment. In the first case, with a microscopic diagnosis of chronic gastric ulcer, the niche formation was so marked that the possibility of healing seemed doubtful. In the second instance the roentgen picture and earlier operative results clearly indicated a considerable defect, but the niche wholly disappeared after ulcer diet.

73: 773-784 (July 24) 1930

*Pathogenesis of Exophthalmic Goiter with Relation to Reid Hunt's Reaction. P. Vogt-Møller.—p. 773.

Pathogenesis of Exophthalmic Goiter with Relation to Reid Hunt's Reaction.—Vogt-Møller's hypothesis is as follows: In persons with "hyperthyroid constitution," increased thyroid hyperfunctioning occurs either on the basis of the generally recognized causes of exophthalmic goiter (to which wrong diet must perhaps be added) or without such cause. Through the sympathetic the increased amount of hormones in the blood leads to a disturbance of the renal functioning which to a greater or less degree hinders the elimination of thyroxin or closely related substances, thus further increasing their accumulation in the organism. Possibly the immediate cause of exophthalmic goiter—the toxins and so forth—may influence the kidneys directly as well as through the thyroid and play a part of the development of the symptom complex of exophthalmic goiter, or this may perhaps also be related to the reduced destruction of thyroxin.

73: 785-812 (July 31) 1930

*Wassermann Reaction in Experimental Syphilis in Rabbits. O. Thomsen and T. Christiansen.—p. 785.
Intermittent Claudication as Result of Lesion Due to Bullet: Case. C. Ortmann.—p. 800.
*Symptomatic Changes in Blood in Nervous Diseases. G. E. Schrøder and A. Nyfeldt.—p. 802. C'td.

73: 813-824 (Aug. 7) 1930

*Symptomatic Changes in Blood in Nervous Diseases. G. E. Schrøder and A. Nyfeldt.—p. 813. C'cn.
Pirquet's Tuberculin Reaction as Cause of General Cutaneous Phenomena. A. Kristjansen.—p. 820.

Wassermann Reaction in Experimental Syphilis in Rabbits.—In rabbits with syphilitic infection (testis inoculation) Thomsen and Christiansen found that a marked positive Wassermann reaction developed regularly from five to six weeks after infection and continued unchanged for a longer or shorter time, occasionally six months, apparently independent of the further clinical course of the infection. After a certain time the reaction, often suddenly, ceased to be positive, even in cases with marked secondary pathologic conditions.

Symptomatic Changes in Blood in Nervous Diseases.—Schrøder and Nyfeldt say that while the results of their hematologic and psychiatric-neurologic diagnoses, in an ambulant material, do not show that certain neurologic conditions or psychoses are always connected with changes in the blood picture, further investigations are encouraged.

Upsala Läkareförenings Förhandlingar, Upsala

35: 223-427 (Aug. 30) 1930

Morphogenetic and Anatomic Studies on Rami Communicantes of Spinal Nerves in Man. M. Wrete.—p. 223.
Polyvalent Vitamin Preparation. H. Rydin.—p. 381.
*Symptomatic Thrombopenic Conditions in Childhood. Y. Åkerrén.—p. 405.
*Postoperative Deaths from Heart Failure. A. Westerborn.—p. 417.

Symptomatic Thrombopenic Conditions in Childhood.—Four cases are presented by Åkerrén. In the first, in an infant with extensive sinus thrombosis, there was marked thrombopenia, which apparently shows the diagnostic significance of thrombocyte examination in this condition. In the second case, an acute aleukemic lymphadenosis, the only pronounced hematologic symptom was the atypical blood picture, almost normal except for a marked thrombopenia. In the last two cases, of rheumatic fever with cardiac disease, with transient thrombopenia and hemorrhagic diathesis, the thrombopenic stage was preceded by an increased thrombocyte count. Thrombocytosis and thrombopenia may thus appear as different phases of the reaction of the organism in infectious diseases.

Postoperative Deaths Due to Heart Failure.—In Westerborn's material of 15,642 operative cases there were 901 postoperative deaths. In his opinion forty-six (about 5 per cent) of the patients died from cardiac insufficiency, and thirty-nine (almost 5 per cent) more from complications resulting from cardiac and vascular weaknesses. Operative interventions should, if possible, be particularly avoided in patients with heart disorders due to chronic myocarditis, fatty degeneration and arteriosclerosis. To disclose such cases, further refinement of the diagnostic procedure is desirable, but application of present methods, especially roentgen examination and the so-called function tests, as well as an exact heart history, will exclude a number of cases in which the patient is unable to withstand the added strain on the heart imposed by operation and the attendant measures. Postoperative deaths due to poor heart function most frequently occur in older persons.